Roy F. Weston, Inc.
Federal Programs Division
37 Upton Drive
Wilmington, Massachusetts 01887
(978) 657-5400 - Fax (978) 658-0700

MAR 0 8 2001

SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM
EPA CONTRACT 68-W-00-097

20 February 2001
20102-001-001-1085-70
DC No. A-1460

Mr. Chuck Schwer
Vermont Agency for Natural Resources
Department of Environmental Conservation
103 South Main Street / West Office
Waterbury, VT 05671-0404

Subject: Final Expanded Site Inspection Report
Blood Farm Dump
Putney, Vermont
CERCLIS No. VTD982542730
TDD No. 00-05-0048

Dear Mr. Schwer:

Enclosed is one copy of the Final Expanded Site Inspection (ESI) Report for the Blood Farm Dump property in Putney, Vermont. The U.S. Environmental Protection Agency Region I (EPA Region I), Office of Site Remediation and Restoration and the Vermont Department of Environmental Protection (VT DEC) comments regarding the contents of the Draft ESI Report have been incorporated, either within this document or as proposed additional work. No comments were received from the property owner. Comments submitted by a local concerned citizen were addressed based on EPA Region I guidance.

Please contact the undersigned at (978) 657-5400 if you have any questions regarding this report.

Very truly yours,

ROY F. WESTON, INC.
Region I START 2000

Denise M. Laferte
Work Group Leader

Daniel Keefe
Project Leader

DML:dml
Enclosures
cc: Gerardo Millan-Ramos (EPA Site Assessment Task Monitor) w/o enclosure

FINAL EXPANDED SITE INSPECTION SUMMARY REPORT
FOR
BLOOD FARM DUMP
PUTNEY, VERMONT

Prepared For:
U.S. Environmental Protection Agency
Region I
Office of Site Remediation and Restoration
1 Congress Street, Suite 1100
Boston, MA 02114-2023

CONTRACT NO. 68-W-00-097

CERCLIS NO. VTD982542730
TDD NO. 00-05-0048
PCS NO. 1085
DC NO. A-1013

Submitted By:
Roy F. Weston, Inc. (WESTON®)
Region I
Superfund Technical Assessment and Response Team 2000 (START)
37 Upton Drive
Wilmington, MA 01887

20 February 2001

Region I START 2000
Reviewed and Approved:

Denise M. Laferte
Work Group Leader

20 February 2001
Date

Daniel Keefe
Project Leader

2/20/2001
Date

QA Review

2/20/2001
Date

Work Order No. 20102-001-001-1085-70

DISCLAIMER

This report was prepared solely for the use and benefit of the U.S. Environmental Protection Agency Region I (EPA Region I), Office of Site Remediation and Restoration for the specific purposes set forth in the contract between the EPA Region I and the Roy F. Weston, Inc. (WESTON®), Superfund Technical Assessment and Response Team 2000 (START). Professional services performed and reports generated by START have been prepared for EPA Region I purposes as described in the START contract. The information, statements, and conclusions contained in the report were prepared in accordance with the statement of work, and contract terms and conditions. The report may be subject to differing interpretations or misinterpretation by third parties who did not participate in the planning, research or consultation processes. Any use of this document or the information contained herein by persons or entities other than the EPA Region I shall be at the sole risk and liability of said person or entity. START, therefore, expressly disclaims any liability to persons other than the EPA Region I who may use or rely upon this report in any way or for any purpose.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF TABLES (Concluded)

Final Expanded Site Inspection
Summary Report
Blood Farm Dump
Putney, Vermont

CERCLIS No. VTD982542730
TDD No. 00-05-0048
Work Order No. 20102-001-001-1085-70

INTRODUCTION

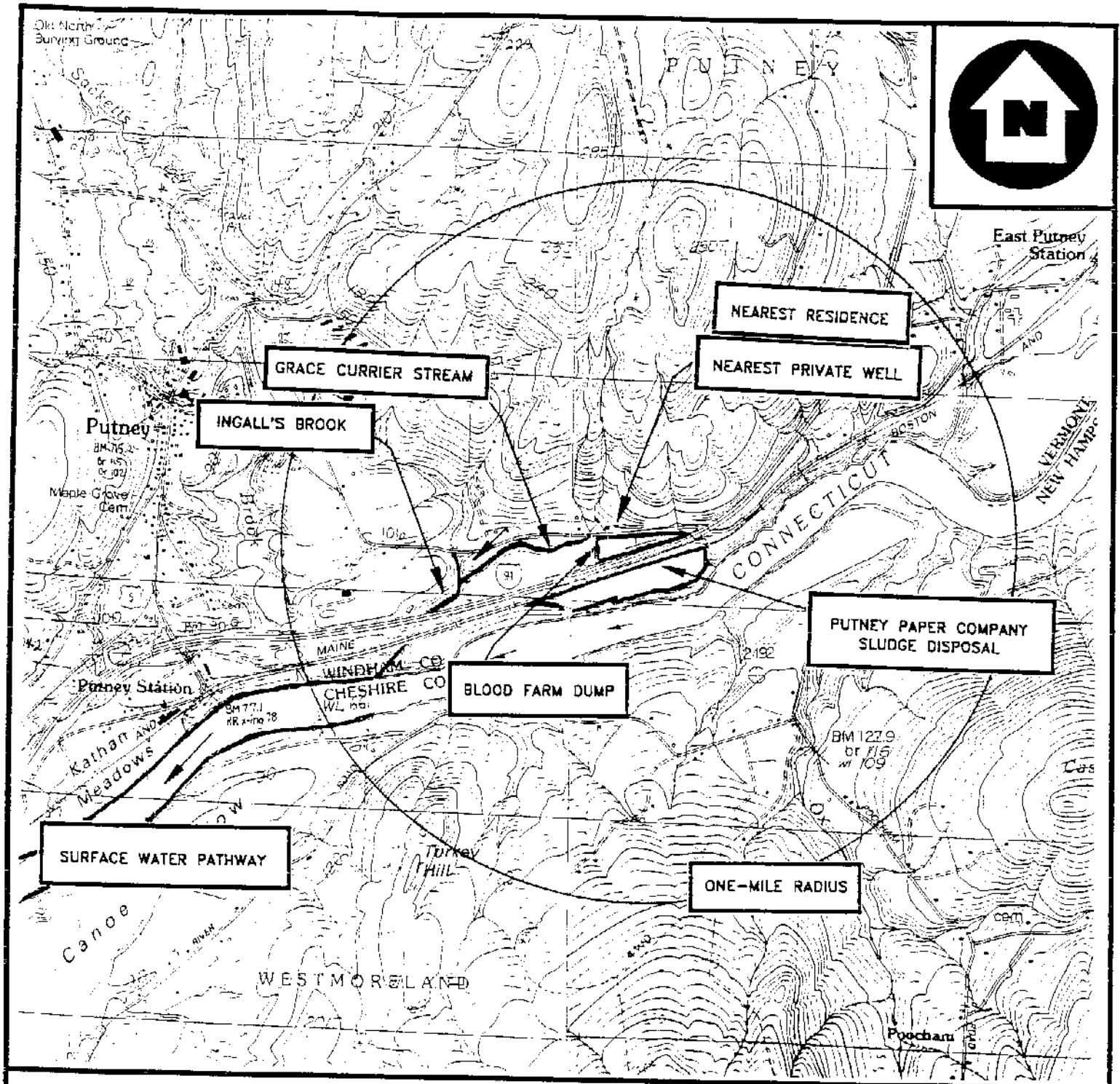
The Roy F. Weston, Inc. (WESTON®) Superfund Technical Assessment and Response Team 2000 (START) was requested by the U.S. Environmental Protection Agency Region I (EPA Region I), Office of Site Remediation and Restoration to perform an Expanded Site Inspection (ESI) of the Blood Farm Dump property located along River Road in Putney, Vermont. Tasks were conducted in accordance with the ESI scope of work and technical specifications provided by EPA Region I. A Site Inspection (SI) report for the Blood Farm Dump property was prepared by the Vermont Agency of Natural Resources (VT ANR) on 1 February 1993. The SI report indicated that a portion of the Blood Farm Dump property had been used by the Putney Paper Company (PPC) for the disposal of paper mill sludge in Summer 1978. As part of the SI, soil/sludge samples were collected from the alleged disposal area. Analytical results for soil/sludge samples collected as part of the SI indicated the presence of polychlorinated biphenyls (PCBs), lead, and zinc in soil/sludge samples collected from a depth of up to 4 feet (ft) below ground surface (bgs). On the basis of the information provided in the SI report and concern expressed by a local citizen, the Blood Farm Dump ESI was initiated.

Background information used in the generation of this report was obtained through file searches conducted at EPA Region I and the Vermont Department of Environmental Conservation (VT DEC); telephone interviews with town officials; conversations with persons knowledgeable of the Blood Farm Dump property; and conversations with other Federal, State, and local agencies.

This package follows the guidelines developed under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, commonly referred to as Superfund. However, these documents do not necessarily fulfill the requirements of other EPA Region I regulations such as those under the Resource Conservation and Recovery Act (RCRA) or other Federal, State, or local regulations. ESIs are intended to provide a preliminary screening of sites to facilitate EPA Region I's assignment of site priorities. They are limited efforts and are not intended to supersede more detailed investigations.

SITE DESCRIPTION

The Blood Farm Dump property is located along River Road in Putney, Windham County, Vermont. The geographic coordinates for the property, as measured from the approximate center of the property, are 42° 58′ 11.3″ north latitude and 72° 29′ 46.0″ west longitude (Figure 1) [1; 2, p. 32]. The original property was comprised of a 5.4-acre lot that was later subdivided into a 2-acre lot and a 3.4-acre lot. The 2-acre lot is owned by PPC and is denoted by the Putney Tax Assessor's Office as Map/Lot No. 08-02-60.1 (Lot No. 60.1). The 2-acre lot contains the foundation of a former on-site residence (Figure 2). The 3.4-acre lot is owned by Ms. Saskia Whallon and is denoted by the Putney Tax Assessor's Office as Map/Lot No. 08-02-60 (Lot No. 60). A building located on the 3.4-acre lot is currently occupied by a residence (apartment) and a dog kennel business (Figure 2) [3; 4].



LOCATION MAP

BLOOD FARM DUMP
RIVER ROAD
PUTNEY, VERMONT

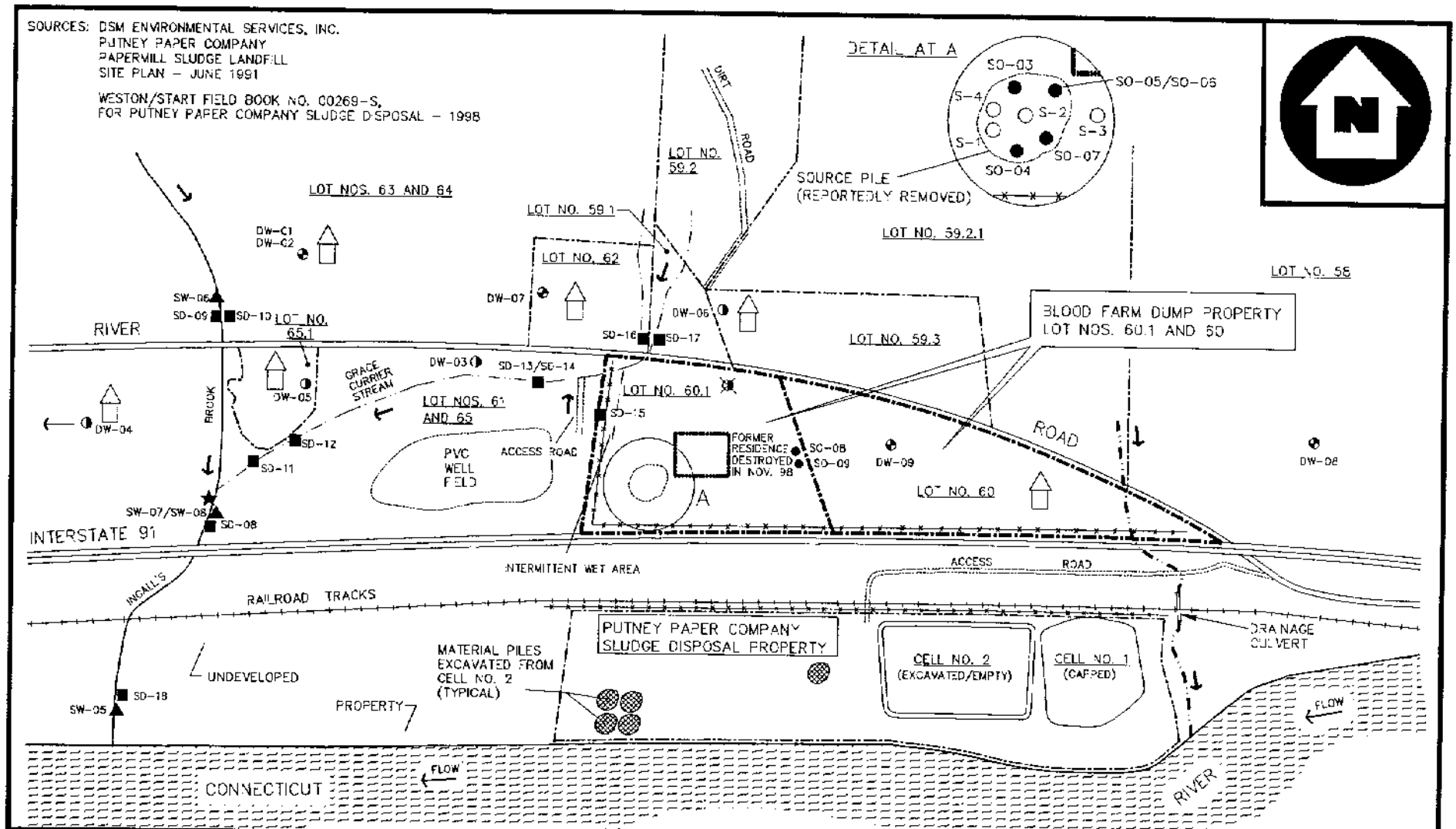
WESTON® MANAGERS DESIGNERS/CONSULTANTS

REGION I SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM

TDD No.	DRAWN BY:	DATE:
98-05-0230	C. SKLANEY	06/18/98

File Name: S:\98010001\FIG1BFD.DWG

FIGURE 1



NOT TO SCALE

LEGEND

- INTERMITTENT STREAM
- FLOW DIRECTION
- SURFACE WATER
- PROBABLE POINT OF ENTRY
- FENCE
- PROPERTY LINE
- DRAINAGE SWALE
- RESIDENCE
- 1996 VT ANR SOIL BORING LOCATIONS (APPROX.WATE)
- START DRINKING WATER SAMPLE WELL DEPTH UNKNOWN
- START DRINKING WATER SAMPLE BEDROCK WELL
- START SURFACE WATER SAMPLE
- START SLUDGE CORE
- START SEDIMENT SAMPLE
- FORMER WATER SUPPLY WELL

START SAMPLE LOCATIONS AND SITE SKETCH

BLOOD FARM DUMP
INTERSTATE 91 AND RIVER ROAD
PUTNEY, VERMONT

WESTON® MANAGERS DESIGNERS/CONSULTANTS
REGION I SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM

TDD #	DRAWN BY:	DATE
00-05-0048	W. SHAW	2/8/01

FILE NAME: S:\00050048\BLOOD\BFARM2

FIGURE 2

An SI report for the property was prepared by VT ANR on 1 February 1993 [6]. The SI report indicated that the original property comprised "5.5 acres" [3, 6, pp. 2, 3]. However, according to the Putney Tax Assessor's office the original property comprised 5.4 acres [3]. For the purpose of this report, the property will include the 2-acre lot and the 3.4-acre lot, for a total of 5.4 acres.

The Blood Farm Dump property is bordered to the north and east by River Road, to the south by Interstate 91, and to the west by undeveloped private property (Figure 2) [2; 5; 6]. Reportedly, "agricultural activities" may occur within 4-radial miles of the site.

On 2 April 1998, START personnel conducted an on-site reconnaissance of the Blood Farm Dump property [2, pp. 16-29]. START personnel observed a single abandoned residence, a dirt driveway, and grassy open spaces on Lot No. 60.1. Lot No. 60 was occupied by a residence and dog kennel business [2, pp. 15, 22]. There are no schools or day-care facilities located within 200 feet (ft) of any potential source area [2, p. 22]. There are no employees or residents associated with Lot No. 60.1 [2, pp. 15, 16]. There are two residents associated with Lot No. 60. These two residents, and one additional employee, work on site (Lot No. 60). File information does not indicate that disposal took place on Lot No. 60 (the eastern portion of the original property).

File information indicates that a 2,000-cubic yard (yd^3) pile of paper mill sludge was disposed of on the western portion of the property in Summer 1978 [6]. The pile was reportedly removed in the early 1990s, possibly 1992. However, conflicting information exists. A local concerned citizen alleges that the pile was never removed and that the pile was spread over the Blood Farm Dump property and covered with a thin layer of soil. At the time of the START on-site reconnaissance on 2 April 1998, there was no pile observed on the portion of Blood Farm Dump previously noted in the file information. START personnel did observe a grey, clay-like material intermixed with surficial soils in some areas of Lot No. 60.1 [2].

During the reconnaissance, START personnel noted that the owner of the western abutting property has installed an estimated 200 to 250 polyvinyl chloride (PVC) monitoring wells/piezometers on the parcel west of the Blood Farm Dump property and along portions of the downstream surface water pathway [2, photos 5, 6]. The reported purpose for installation of the monitoring wells/piezometers was to assess potential migration of contaminants from the Blood Farm Dump property and the Putney Paper Company Sludge Disposal (PPCSD) property [Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) No. VT0000128181]. The PPCSD property is a private landfill owned by PPC, located south of the Blood Farm Dump property and across Interstate 91 (Figure 2).

On 8 November 1998, the abandoned residence located on Lot No. 60.1 was burned as part of fire training exercises conducted by several local area fire departments. START personnel observed the fire-fighting exercises and noted that very little runoff was generated from on-site activities and that there was no visible impact to nearby Grace Currier Stream or Ingall's Brook [2, pp. 36, 37]. START personnel also noted that a majority of smoke generated during on-site activities drifted in a southeasterly direction and did not significantly impinge upon the ground surface [25]. It is unknown to START if subsequent precipitation events caused any residual contaminants associated with fire-training exercises to flow into Grace Currier Stream.

OPERATIONAL AND REGULATORY HISTORY AND WASTE CHARACTERISTICS

Property usage prior to 1978 is primarily unknown. Table 1 summarizes historical ownership of the Blood Farm Dump property.

Table 1

Historical Ownership of the Blood Farm Dump Property

Date of Ownership	Owner
Unknown to 1978	The 5.4-acre property was originally used to raise pigs and cultivate vegetable crops. MBCC Bellows Falls Corporation owned the property.
July 1978	Mr. Earl Stockwell of the Northern States Corporation purchased the 5.4-acre property.
July 1984	Putney Paper Company (PPC) (Mr. Earl Stockwell, President) purchased the 5.4-acre property from Northern States Corporation.
1985	The property was divided into a 2-acre lot and a 3.4-acre lot. PPC sold the 2-acre lot to Mr. Thomas and Mrs. Nancy Meyer in 1985; the 2-acre lot was subsequently sold to Mr. Dan Meyer on an unknown date.
1987	The 3.4-acre lot was sold to Mr. Thomas Meyer and Mrs. Nancy Meyer.
January 1997	The 2-acre lot and the 3.4-acre lot were sold back to PPC. The 3.4-acre lot was subsequently sold on an unknown date and is currently occupied by an apartment and dog kennel. PPC retains ownership of the 2-acre lot.

[6, pp. 2, 3]

The PPC mill facility is located approximately 1.4 miles northwest of the Blood Farm Dump property. The PPC mill facility is listed in CERCLIS as Putney Paper Company Mill & Lagoons (CERCLIS No. VTD001087188). PPC reportedly dumped paper mill sludge generated at the mill facility, potentially containing heavy metals and PCBs, on the Blood Farm Dump property. The sludge was reportedly deposited on the western portion of the "5.5-acre" property during Summer 1978, although dumping may have occurred at other times as well. Many of the locations and methods of paper sludge disposal by PPC are undocumented [6, p. 3].

On 2 September 1980, Southern Vermont Engineering prepared a document titled "Sanitary Landfill for Putney Paper Company, Inc." for PPC. The document, submitted to VT DEC, proposed the creation of a private landfill (for PPC) on a "5.5-acre" triangular tract of land located on River Road, in Putney, Vermont [44, p. 2]. Based on location sketches within the document, the property referred to is the current Blood Farm Dump property.

Note: Text in italics indicates original portions of the 1 February 1993 Vermont Department of Environmental Conservation, Agency of Natural Resources, Hazardous Materials Management Division Site Inspection Report which were either copied or paraphrased.

In 1983, PPC submitted a document titled "Sludge Landfill for Putney Paper Company, Inc." to VT DEC. The document again proposed that a private landfill (for PPC) be constructed on the Blood Farm Dump property [45]. A subsequent proposal cited the proposed landfill location on a 14-acre tract of land located south of Interstate Route 91, and north of the Connecticut River. The second proposed location, the current PPCSD property, is where the private landfill was subsequently developed. This proposal also stated that PPC generated approximately 30 yd^3 of sludge daily and that the sludge was being disposed of at the sanitary landfill in Brattleboro, Vermont pending landfill certification [45].

On an unknown date prior to 1989, a residence was built on Lot No. 60.1 [5, p. 9]. START personnel observed the residence during an on-site reconnaissance performed on 2 April 1998. At the time of the reconnaissance, the residence was abandoned and boarded up [2; 21].

On 28 December 1989, VT ANR completed a Preliminary Assessment (PA) report for the Blood Farm Dump property [5]. The PA report stated that PPC disposed of paper mill sludge on the Blood Farm Dump property during Summer 1978. The remainder of the PA report focused on manufacturing processes, disposal practices, and wastestreams associated with the PPC facility located 1.4 miles northwest of the Blood Farm Dump property. The PA report also discussed off-site paper sludge samples collected at the PPC mill facility. No environmental sampling was conducted at the Blood Farm Dump property as part of the PA [5].

In December 1989, samples were collected from a private drinking water supply well serving the Blood Farm Dump property residence (Lot No. 60.1) and from the off-site drinking water supply well serving the residence located on Lot No. 59.3. The samples were analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and heavy metals. All VOCs and SVOCs tested below laboratory detection limits. Copper, zinc, and barium were detected in both water supplies at levels below the health-based groundwater enforcement standards in the 1989 Vermont Groundwater Protection Rule and Strategy [6, p. 7].

In May 1990, as part of the VT ANR SI, the off-site drinking water supply well serving the residence located on Lot No. 59.3 was again sampled. The sample was presumably analyzed for VOCs, SVOCs, and heavy metals. All VOCs and SVOCs were found to be below detection limits. Zinc had a higher concentration in the 1990 sample than the sample collected in 1989 [54 parts per billion (ppb) versus 16 ppb]. No drinking water samples were collected from the water supply well serving the Blood Farm Dump property (Lot No. 60.1) [6, p. 7].

On 1 February 1993, VT ANR completed the SI report for the Blood Farm Dump property [6]. According to the SI report, a grey clay-like sludge was found within approximately 200 ft of the on-site residence (Lot No. 60.1) during the PA. The sludge area was reportedly "slightly mounded" with "a thickness ranging up to 4 ft." In May 1990, three soil borings (S-1, S-2, and S-4) were advanced in the area of alleged sludge disposal as part of the SI. A fourth soil boring (S-3) was advanced at a reference location [6, p. 5]. Approximate soil boring locations are depicted on Figure 2. Table 2 summarizes soil boring samples collected as part of the VT ANR SI.

Table 2

Soil Boring Samples Collected by Vermont Agency of Natural Resources for the Blood Farm Dump Property in May 1990

Soil Boring Location	Sample Depth and Analysis Performed		
	Center of Sludge Body	Below Sludge/Soil Interface	2 Feet Below Sludge/Soil Interface
Soil Boring S-1	Sludge sample SB-1A, collected from 1.7 ft to 2.4 ft bgs and analyzed for VOCs, SVOCs, Metals, and PCBs. Replicate sample SB-1A-R collected at same depth for same analyses as SB-1A.	Soil sample SB-1B, collected from 4.1 ft to 4.8 ft bgs and analyzed for VOCs, SVOCs, and Metals.	Soil sample SB-1C, collected from 7.2 ft to 8.0 ft and analyzed for VOCs, SVOCs, and Metals.
Soil Boring S-2	Sludge sample SB-2A, collected from 1.7 ft to 2.3 ft bgs and analyzed for VOCs, SVOCs, Metals, and PCBs.	Soil sample SB-2B collected from 3.5 ft to 4.2 ft bgs and analyzed for VOCs, SVOCs, and Metals.	NA
Soil Boring S-3	NA	NA	Background soil sample collected from 4.5 ft to 5 ft bgs and analyzed for VOCs, SVOCs, Metals, and PCBs.
Soil Boring S-4	Sludge sample collected from 1.9 to 2.6 ft bgs for TCLP analysis.	NA	NA

ft = Feet.
bgs = Below ground surface.
VOCs = Volatile organic compounds.
SVOCs = Semivolatile organic compounds.
PCBs = Polychlorinated biphenyls.
NA = Not applicable, sample not collected from noted location.
TCLP = Toxicity characteristic leaching procedure

[6, p. 5]

Soil and sludge sample analytical results indicated a concentration of 60 ppb of chloroform and 6 ppb of bromodichloromethane in the background soil sample. PCBs were reportedly present at concentrations ranging from 1,280 to 1,359 ppb in the sludge samples; no PCBs were found in the underlying soils. Lead concentrations of 18 parts per million (ppm) and 19 ppm were also detected in the sludge; no lead was detected in soil samples. Zinc was detected in the background soil sample at a concentration of 27 ppm, and at 100 ppm and 88 ppm in the sludge samples. Soil samples collected from just below the sludge/soil interface indicated that zinc was present at 38.4 and 41.7 ppm [6, Table 4]. Concentrations of 45 ppm of acetone were identified in a toxicity characteristics leaching procedure (TCLP) sludge extract analyzed by Aquatec, a private laboratory. Results from a VOC sample (analyzed by the State laboratory) did not indicate that acetone was detected in the sludge extract [6].

On 2 April 1998, START personnel conducted an on-site reconnaissance of the Blood Farm Dump property. On 8 November 1998, the abandoned residence located on Lot No. 60.1 was burned as part of fire training exercises conducted by several local area fire departments. Refer to the Site Description section of this report for further discussion of START observations regarding the on-site reconnaissance and fire training exercises.

On 6 and 7 December 1998, START personnel completed a combined sampling effort for the Blood Farm Dump property, and the nearby PPCSD property for the ESI. START personnel collected surficial soil/source samples from the Blood Farm Dump property, drinking water samples from active nearby residential wells, and surface water and sediment samples from the downstream surface water pathway associated with the Blood Farm Dump property [2; 21]. Refer to Soil Exposure Pathway, Groundwater Pathway, and Surface Water Pathway portions of this summary report for discussion of START sampling conducted for the Blood Farm Dump property. Analytical results for START samples collected specifically to assess the PPCSD property are discussed in a separate ESI Summary Report and are not included in this evaluation.

Table 3 presents identified structures or areas on the Blood Farm Dump property that are documented or potential sources of contamination, the containment factors associated with each source, and the relative location of each source.

Table 3

Source Evaluation for Blood Farm Dump

Source Area	Containment Factors	Spatial Location
Contaminated Soil	None	Southwestern portion of the property.

[2; 5; 6]

Table 4 summarizes the types of potentially hazardous substances which have been disposed, used, or stored on the Blood Farm Dump property.

Table 4

Hazardous Waste Quantity for Blood Farm Dump

Substance	Quantity or Volume/Area	Years of Use/Storage	Years of Disposal	Source Area
Paper mill sludge	2,000 cubic-yard pile	1978-1992	1 year	Contaminated Soil

Notes: The paper sludge was allegedly disposed of on the property in Summer 1978. The pile source is no longer located on the property and was likely removed in 1992. START surficial soil sampling documents that residual soil contamination in the alleged area of disposal remains on site.

[5; 6]

The Resource Conservation and Recovery Information System (RCRIS) lists nine properties located in Putney, Vermont [26]. There are a total of three CERCLIS sites in Putney, Vermont: Blood Farm Dump, PPCSD, and Putney Paper Company Mill & Lagoons. There are no National Priority List (NPL) sites located in Putney, Vermont [27].

WASTE/SOURCE SAMPLING

As part of the VT ANR SI, soil and sludge samples were collected from differing depths from three soil borings advanced in the alleged sludge disposal area (SB-1, SB-2, and SB-4), and from a background soil boring location (SB-3) in 1990 [6, p. 3]. Sample analytical results indicated a concentration of 60 ppb of chloroform and 6 ppb of bromodichloromethane in the background soil sample. PCBs were reportedly present at concentrations ranging from 1,280 to 1,359 ppb in the sludge samples; no PCBs were found in the underlying soils. Lead concentrations of 18 ppm and 19 ppm were also detected in the sludge; no lead was detected in soil samples. Zinc was detected in the background soil sample at a concentration of 27 ppm, and at 100 ppm and 88 ppm in the sludge samples. Soil samples collected from just below the sludge/soil interface indicated that zinc was present at 38.4 and 41.7 ppm [6, Table 4]. A concentration of 45 ppm of acetone was identified in a TCLP sludge sample extract analyzed by Aquatec, a private laboratory; however, results from a VOC sample (analyzed by the state laboratory) did not detect acetone in the sludge [6].

On 6 December 1998, START personnel collected seven surficial soil/source samples from the Blood Farm Dump property. Five of the samples, including the duplicate, were collected to determine if residual surficial soil contamination exists in the vicinity of the former paper sludge pile. Two surficial soil samples were collected to document reference concentrations. Surficial soil/source samples were submitted to a Contract Laboratory Program (CLP) laboratory for analysis. Additionally, dioxin samples were collected from one surficial soil sample location (SS-05 and duplicate sample SS-06) and one reference sample location (SS-08) and were submitted to a Delivery of Analytical Services (DAS) laboratory for analysis. Table 5 is a summary of START surficial soil/source samples collected from the Blood Farm Dump property on 6 December 1998.

Table 5

Sample Summary: Blood Farm Dump
Surficial Soil/Source Samples Collected by START on 6 December 1998

Sample Location No.	Traffic Report No.	Date/ Time (hrs)	Remarks	Sample Depth and Location*	Sample Source
SO-03	APP11 MALX66	12/6/98 1050	Grab	0-24 inches 42° 58′ 09.1″ N 72° 29′ 50.6″ W	Surficial soil sample collected from the presumed former location of the sludge pile. Sample consisted of light brown medium-to-fine sand with grey material.
SO-04	APP12 MALX67	12/6/98 1115	Grab	0-24 inches 42° 58′ 09.1″ N 72° 29′ 51.8″ W	Surficial soil sample collected from the presumed former location of the sludge pile. Sample consisted of medium brown sand with some clay and grey material.
SO-05**	APP13 MALX68 DAF12H	12/6/98 1100	Grab	0-24 inches 42° 58′ 09.4″ N 72° 29′ 51.3″ W	Surficial soil sample collected from the presumed former location of the sludge pile. Sample consisted of medium grey clay and silt, and white or light grey material (interbedded). Some orange mottles (non-natural) present.
SO-06**	APP14 MALX69 DAF13H	12/6/98 1100	Grab	0-24 inches 42° 58′ 09.4″ N 72° 29′ 51.3″ W	Duplicate of sample SO-05, collected for quality control.
SO-07	APP15 MALX70	12/6/98 1125	Grab	0-24 inches 42° 58′ 08.9″ N 72° 29′ 51.2″ W	Surficial soil sample collected from the presumed former location of the sludge pile. Sample consisted of medium grey clay and silt (clay at depth).
SO-08**	APP16 MALX71 DAF14H	12/6/98 1030	Grab	0-24 inches 42° 58′ 10.6″ N 72° 29′ 48.6″ W	Surficial soil sample collected from the Blood Farm Dump property to serve as a reference sample. Sample consisted of light brown sand with silt.
SO-09	MALX72	12/6/98 1040	Grab	0-24 inches 42° 58′ 10.6″ N 72° 29′ 48.6″ W	Surficial soil sample collected from the Blood Farm Dump property to serve as an additional reference sample for metals analysis only. Sample consisted of light brown fine sand with some silt.

hrs = Hours.

* Latitude and longitude for sample locations were recorded using a Global Positioning System (GPS) receiver on the day of collection.

** Sample was also analyzed for dioxin.

Note: START surficial soil/source samples were field screened for volatile organic compounds using a Flame Ionization Detector. No readings above background levels were recorded. Samples SO-01A, SO-01B, SO-01C, SO-02A, SO-02B, SO-02C, and SO-02D were collected from the PPCSD property (specifically to evaluate the PPCSD property) and are not presented in this report.

[21]

Table 6 is a summary of organic compounds and inorganic elements detected through CLP and DAS analyses of START surficial soil/source samples. For each sample, a compound or element is listed if it is detected at three times or greater than the reference sample concentration (SO-08 and SO-09). However, if the compound or element is not detected in the reference sample, the reference sample's sample quantitation limit (SQL) (for organic analyses) or sample detection limit (SDL) (for inorganic analyses) is used as the reference value. These compounds or elements are listed if they occurred at a value equal to or greater than the reference sample's SQL or SDL and are designated by their approximate relative concentration above these values. Complete analytical results for START surficial soil/source samples are provided in Attachment A.

Sample results qualified with a "J" on analytical tables are considered approximate because of limitations identified during data validation. In addition, organic sample results reported at concentrations below quantitation limits and confirmed by mass spectrometry are also qualified by a "J" and considered approximate.

Table 6

Summary of Analytical Results
Surficial Soil/Source Sample Analysis for Blood Farm Dump

Sample Location	Compound/ Element	Sample Concentration	Reference Concentration	Comments
SO-03 APP11 MALX66	**SVOCs**			
	Butylbenzylphthalate	2.000 EB ppb	1.900 UJ ppb	1.1 × SQL
	PESTICIDES/PCBs			
	4,4' DDE	6.0 ppb	3.9 U ppb	1.5 × SQL
	4,4' DDT	8.8 ppb	3.9 U ppb	2.3 × SQL
	Aroclor-1254	44 ppb	39 U ppb	1.1 × SQL
	INORGANICS			
	Calcium	8,080 ppm	1,620 ppm	5.0 × SDL
	Thallium	1.8 ppm	0.48 U ppm	3.8 × SDL
SO-04 APP12 MALX67	**PESTICIDES/PCBs**			
	Aroclor-1254	56 ppb	39 U ppb	1.4 × SQL
SO-05 APP13 MALX68 DAF121I	**PESTICIDES/PCBs**			
	4,4'-DDE	4.9 J ppb	3.9 U ppb	1.3 × SQL
	Heptachlor epoxide	8.0 ppb	2.0 U ppb	4 × SQL
	gamma-Chlordane	4.4 ppb	2.0 U ppb	2.2 × SQL
	Aroclor-1254	150 ppb	39 U ppb	3.8 × SQL

Table 6

Summary of Analytical Results
Surficial Soil/Source Sample Analysis for Blood Farm Dump (Continued)

Sample Location	Compound/ Element	Sample Concentration	Reference Concentration	Comments
SO-05 (concl.)	**INORGANICS**			
	Cyanide	0.93 ppm	0.23 U ppm	4.0 × SDL
	DIOXIN			
	2,3,7,8-TCDD	6.14 J ppt	0.266 UJ ppt	23.1 × SDL
	1,2,3,6,7,8-HxCDD	22.8 J ppt	0.971 UJ ppt	23.5 × SDL
	1,2,3,7,8,9-HxCDD	8.87 J ppt	0.554 UJ ppt	16.0 × SDL
	1,2,3,4,6,7,8-HpCDD	404 J ppt	12.7 J ppt	31.8 × SDL
	OCDD	3,740 J ppt	131 J ppt	28.5 × SDL
	2,3,7,8-TCDF	62.1 J ppt	1.21* ppt	51.3 × EMPC
	1,2,3,7,8-PeCDF	1.23 J ppt	0.310 UJ ppt	4.0 × SDL
	1,2,3,4,7,8-HxCDF	9.08 J ppt	1.13 UJ ppt	8.0 × SDL
	1,2,3,6,7,8-HxCDF	2.90 J ppt	0.536 UJ ppt	5.4 × SDL
	1,2,3,4,6,7,8-HpCDF	57.4 J ppt	2.74 UJ ppt	21.0 × SDL
	1,2,3,4,7,8,9-HpCDF	6.47 J ppt	0.536 UJ ppt	12.1 × SDL
	OCDF	191 J ppt	8.06 UJ ppt	23.7 × SDL
SO-06 APP14 MALX69 DAF13H	**PESTICIDES/PCBs**			
	4,4'-DDE	4.8 J ppb	3.9 U ppb	1.2 × SQL
	Heptachlor epoxide	7.9 ppb	2.0 U ppb	4.0 × SQL
	gamma-Chlordane	4.3 ppb	2.0 U ppb	2.2 × SQL
	Aroclor-1254	140 ppb	39 U ppb	3.6 × SQL
	INORGANICS			
	Cyanide	0.60 ppm	0.23 U ppm	2.6 × SDL
	DIOXIN			
	2,3,7,8-TCDD	4.5 ppt	0.266 UJ ppt	16.9 × SDL
	1,2,3,6,7,8-HxCDD	24.9 ppt	0.971 UJ ppt	25.6 × SDL

Table 6

Summary of Analytical Results
Surficial Soil/Source Sample Analysis for Blood Farm Dump (Concluded)

Sample Location	Compound/ Element	Sample Concentration			Reference Concentration			Comments
SO-06 (concl.)	**DIOXIN (Concluded)**							
	1,2,3,7,8,9-HxCDD	7.97		ppt	0.554	UJ	ppt	14.4 × SDL
	1,2,3,4,6,7,8-HpCDD	348	J	ppt	12.7	J	ppt	27.4 × SDL
	OCDD	3,430	J	ppt	131	J	ppt	26.2 × SDL
	2,3,7,8-TCDF	41.5	J	ppt	1.21*		ppt	34.3 × EMPC
	2,3,4,7,8-PeCDF	2.61		ppt	0.528	UJ	ppt	4.9 × SDL
	1,2,3,4,7,8-HxCDF	8.41		ppt	1.13	UJ	ppt	7.4 × SDL
	1,2,3,4,6,7,8-HpCDF	49.2	J	ppt	2.74	UJ	ppt	18.0 × SDL
	1,2,3,4,7,8,9-HpCDF	5.42		ppt	0.536	UJ	ppt	10.1 × SDL
	OCDF	172	J	ppt	8.06	UJ	ppt	21.3 × SDL
SO-07 APP15 MALX70	**VOCs**							
	Acetone	430		ppb	12	U	ppb	35.8 × SQL
	PESTICIDES/PCBs							
	Heptachlor epoxide	3.2		ppb	2	U	ppb	1.6 × SQL
	4,4'-DDE	4.4	J	ppb	3.9	U	ppb	1.1 × SQL
	4,4-DDT	4.8	J	ppb	3.9	U	ppb	1.2 × SQL
	gamma-Chlordane	2.8	J	ppb	2	U	ppb	1.4 × SQL
	Aroclor-1254	110		ppb	39	U	ppb	2.8 × SQL

EB = Indicates the substance was also detected in the quality control equipment (rinsate) blank sample.
J = Quantitation is approximate due to limitations identified during the quality control review.
U = Indicates the sample was analyzed but the analyte was not detected and reports the detection value.
UJ = The reported quantitation limits are qualified estimated.
ppb = Parts per billion.
ppm = Parts per million.
ppt = Parts per trillion.
PCBs = Polychlorinated Biphenyls.
VOCs = Volatile Organic Compounds.
SVOCs = Semivolatile Organic Compounds.
SQL = Sample Quantitation Limit.
SDL = Sample Detection Limit.
* = These reference values are EMPCs (Estimated Maximum Possible Concentration).

[28; 29; 30]

Table 7 compares maximum concentrations detected in START source samples with risk-based concentrations for contaminants detected in surficial soils at the Blood Farm Dump property. VT ANR utilizes EPA Region III Risk-Based Concentrations (RBCs) for surficial soil comparisons [31; 32]. RBCs provide reference doses and cancer slope factors for selected chemicals. These toxicity factors have been combined with "standard" exposure scenarios to calculate RBCs. RBCs are chemical concentrations corresponding to fixed levels of risk in water, air, fish tissue, and soil. The primary use of RBCs is for chemical screening during a baseline risk assessment. For a single contaminant in a single medium, under standard default exposure assumptions, the RBC corresponds to a target risk or hazard quotient. RBCs have several important limitations. Specifically, excluded from consideration are transfers from soil to air and groundwater; cumulative risk for multiple contaminants or medium; and dermal risk. Additionally, the risks for inhalation of vapors from water are based on a very simple model, whereas detailed risk assessments may use more detailed models. RBCs do not constitute an enforceable regulatory standard and should not be viewed as a substitute for a site-specific risk assessment.

Table 7

Comparison of Analytes Detected in Surficial Soils to EPA Region III Risk-Based Concentration Values Blood Farm Dump

Analyte	Maximum Concentration Detected in START Soil Samples		RBC (Soil)	
Acetone	430	ppb	7,800,000	ppb
Aroclor-1254	150	ppb	320	ppb
Butyl-benzylphthalate	2,000	ppb	16,000,000	ppb
Calcium	8,080	ppb	NL	ppb
2,3,7,8-TCDD	**6.14**	**J ppt**	**4.3**	**ppt**
gamma-Chlordane	4.4	ppb	1,800	ppb
Cyanide (free)	930	ppb	1,600,000	ppb
4,4'-DDE	6	ppb	1,900	ppb
4,4'-DDT	8.8	ppb	1,900	ppb
Heptachlor Epoxide	8	ppb	70	ppb
Thallium	1.8	ppm	5,500	ppm

RBC = Risk-based concentration.
ppt = Parts per trillion.
ppb = Parts per billion.
ppm = Parts per million.
NL = Value is not listed.
J = Quantitation is approximate due to limitations identified during the quality control review.

Notes: The State of Vermont defers to EPA Region III RBC values for surficial soil assessment. 2,3,7,8-TCDD is the dioxin congener and is listed for comparison purposes. Bolded values indicate exceedences of RBC values.

[32]

Dioxin (2,3,7,8-TCDD congener) concentrations detected in surficial soil/source samples SO-05 and SO-06, collected by START on 6 December 1998, exceed EPA Region III RBCs. Dioxin congeners were also detected in paper sludge samples collected from the PPCSD property as part of the PPCSD ESI. Refer to the PPCSD ESI Summary Report for complete analytical results of off-site paper sludge samples collected as part of this investigation.

Based on START soil/source analytical results, one VOC (acetone); one SVOC (butylbenzylphthalate); one PCB (Aroclor-1254); four pesticides (4,4'DDE, heptachlor epoxide, gamma-chlordane, 4,4'DDT); two metals (calcium, thallium); cyanide; and 13 dioxin congeners (2,3,7,8-TCDD; 1,2,3,6,7,8-HxCDD; 1,2,3,7,8,9-HxCDD; 1,2,3,4,6,7,8-HpCDD; OCDD; 2,3,7,8-TCDF; 1,2,3,7,8-PeCDF; 2,3,4,7,8-PeCDF; 1,2,3,4,7,8-HxCDF; 1,2,3,6,7,8-HxCDF; 1,2,3,4,6,7,8-HpCDF; 1,2,3,4,7,8,9-HpCDF; and OCDF) were detected in on-site surficial soils. To date, no known actions have been taken to address the release to surficial soils.

GROUNDWATER PATHWAY

Putney is located in the Vermont Piedmont and the Connecticut River Valley physiographic provinces. The Piedmont terrain is undulating to rough with many steep-sided valleys. The Connecticut River Valley includes the flat floodplains and terraces proximal to the river. The property is located on an upper river or glacial lake terrace in the valley [6, p. 6].

The property is underlain by fine-grained stratified glacial drift that has a low potential for groundwater development. However, some wells in the surficial deposits can be expected to yield sufficient water for domestic use. The surficial materials on the property are mapped as pebbly-sand littoral glacial lake deposits; south of the property, the materials are mapped as postglacial fluvial sands. The former Blood Farm Dump property water supply well (Lot No. 60.1) was drilled through 120 ft of silt, and was screened in a thin, 2-ft-to-5-ft-thick, gravel bed between the silt or clay, and the bedrock. The occurrence of a gravel bed at the base of the lake clays is common in the Connecticut River Valley [6, p. 6].

Two conflicting surveys of surficial deposits within the property area map different types of material. The first study, completed in 1960, delineates economic sand and gravel deposits on the terrace on either side of Sackett's Brook and south of Landmark College. The deposits extend eastward to include the site. A more recent study maps the terrace along the Connecticut River as mostly fine sediments indicating that 60% to 100% of the grains are less than 0.005 inches in diameter. The hills north of River Road are covered with a thin layer of glacial till. The differences in the reports relate to the variability of the surficial deposits. A typical cross section would have post-glacial fluvial sand and gravel over glacial lake fine sand, silt, or clay, over glacial outwash sand and gravel [6, p. 6].

Soil on the property is mapped as Unadilla silt loam, a soil mixture of clay, silt, sand, and organic matter. This soil is found on glacial lake plains and stream valley terraces; it is very deep, well drained, and moderately permeable. Soils in the vicinity of the property are a mixture of Windsor loamy fine sand and Agawam very fine loam. Windsor soil is found on terraces along stream valleys and formed in sandy glacial river deposits. The soil is very deep, excessively drained, and the permeability is rapid to very rapid. Agawam soil is also found on stream terraces, but it formed in loamy glacial drift deposits underlain by sandy glacial river deposits. This soil is very deep and

well drained; permeability is moderately rapid. Soil on the hillside north of the property is the Taconic-Hubbardton-Rock outcrop complex. The soil is shallow and somewhat excessively drained [6, p. 6].

The underlying bedrock is slate, phyllite, and mica schist with interbedded quartzite of the Devonian Littleton formation. The property is probably also near the contact between the Littleton formation and the Silurian Clough quartzite, and quartz and quartz-pebble conglomerate in the quartzite and quartz-mica schist matrix, and the Ordovician Partridge formation, a sulfitic mica schist and quartz-mica schist [6, p. 7].

Based on regional topography, overburden groundwater likely flows south toward the Connecticut River, or locally toward Grace Currier Stream and Ingall's Brook [8; 12]. However, there are no on-site monitoring wells located on the Blood Farm Dump property, and an actual determination of groundwater flow direction beneath the Blood Farm Dump property has not been determined to date.

The Vermont towns of Dummerston (population: 1,863) and Putney (population: 2,352), and the New Hampshire town of Westmoreland (population: 1,596) are located within 4-radial miles of the Blood Farm Dump property [8-13; 46; 47]. The majority of the populations for all three towns are served by private water supply wells. As described in Table 8, seven community-type public water supplies have been identified within 4-radial miles of the property [22; 23].

Table 8

Public Groundwater Supply Sources Within 4-Radial Miles of Blood Farm Dump

Distance/ Direction from Site	Source Name	Location of Source[a]	Estimated Population Served	Source Type[b]
1.1 miles/west	Germon Trailer Park	Putney, VT	47	1 Bedrock
1.1 miles northwest	Landmark College	Putney, Vermont	350	Unknown
1.6 miles/east	Cheshire County Home	Westmoreland, NH	225	3 Bedrock
1.8 miles/east	Putney Meadows Well	Westmoreland, NH	56	Unknown
3.2 miles/east	Westmoreland Elementary School	Westmoreland, NH	155	Unknown
3.9 miles/southwest	Charette Water System	Dummerston, VT	30	5 Bedrock
3.9 miles/east	Cedar Creek Well	Westmoreland, NH	30	Unknown

[a] Indicates Town in which well is located.
[b] Overburden, Bedrock, or Unknown well type.
[22; 23]

The population utilizing private wells within 4-radial miles of the property was estimated using equal distribution calculations of CENTRACTS data identifying population, households, and private water wells for U.S. Census "Block Groups" which lie wholly or in part within individual radial distance rings measured from potential sources on the property [7]. The nearest private well is located on site (Lot No. 60) and serves a population of three [2]. Table 9 summarizes the population utilizing groundwater supplies located within 4-radial miles of the Blood Farm Dump property.

Table 9

Estimated Drinking Water Populations Served by Groundwater Sources Within 4-Radial Miles of Blood Farm Dump

Radial Distance from Blood Farm Dump (miles)	Estimated Population Served by Private Wells	Estimated Population Served by Public Wells	Total Estimated Population Served by Groundwater Sources Within the Ring
≥ 0.00 to 0.25	21	0	21
> 0.25 to 0.50	62	0	62
> 0.50 to 1.00	248	0	248
> 1.00 to 2.00	514	678	1,192
> 2.00 to 3.00	1,014	0	1,014
> 3.00 to 4.00	1,399	215	1,614
TOTAL	3,258	893	4,151

[7; 22; 23]

In December 1989, samples were collected from a private drinking water supply well serving the Blood Farm Dump property residence (Lot No. 60.1) and from the off-site drinking water supply well serving the residence located on Lot No. 59.3. The samples were analyzed for VOCs, SVOCs, and heavy metals. All VOCs and SVOCs tested below laboratory detection limits. Copper, zinc, and barium were detected in both water supplies at levels below the health-based groundwater enforcement standards based on the 1989 Vermont Groundwater Protection Rule and Strategy [6, p. 7].

In May 1990, as part of the VT ANR SI, the off-site drinking water supply well serving the residence located on Lot No. 59.3 was again sampled. The sample was presumably analyzed for VOCs, SVOCs, and heavy metals. All VOCs and SVOCs were found to be below detection limits. Zinc had a higher concentration in the 1990 sample than the sample collected in 1989 (54 ppb versus 16 ppb). No drinking water samples were collected from the water supply well serving the Blood Farm Dump property [6, p. 7].

On 6 December 1998, START personnel collected nine drinking water samples from nearby private drinking water supply wells [21]. Drinking water samples were analyzed for low-level VOCs via Method 524.2 by a DAS laboratory and for SVOCs, pesticides, PCBs, metals, and cyanide through the CLP. Five of the drinking water samples were also analyzed for dioxin through a DAS laboratory. Table 10 provides a summary of drinking water samples collected by START.

Table 10

Sample Summary: Blood Farm Dump
Drinking Water Samples Collected by START on 6 December 1998

Sample Location No.	Traffic Report No.	Date/ Time (hrs)	Remarks	Well Type/ Approximate Depth	Sample Source
MATRIX: Aqueous - Drinking Water					
DW-01*	DAF85G APP02 MALX57 DAF85G	12/6/98 1215	Grab; No filter system	Bedrock-Drilled 240-250 ft bgs	Grab drinking water sample collected from a private residential deep water supply (Lot Nos. 63 and 64). Sample was collected to document if hazardous substances have impacted the private drinking water supply. MS/MSD for low-level VOC fraction only. Conductivity = 78 µmhos; Temperature =9.75 °C; Salinity = 0; pH = 5
DW-02*	DAF86G APP03 MALX58 DAF86G	12/6/98 1230	Grab; No filter system	Bedrock-Drilled 240-250 ft bgs	Replicate of sample DW-01, collected for quality control. Conductivity = 78 µmhos; Temperature = 9.75 °C; Salinity = 0; pH = 5
DW-03*	DAF87G APP04 MALX59 DAF87G	12/6/98 1310	Grab; No filter system	Overburden Open Borehole 15-18 ft bgs	Grab drinking water sample collected from a residential shallow water supply (Lot Nos. 63 and 64). Sample was collected to document if hazardous substances have impacted the private drinking water supply. Sample appeared rusty-orange in color. Conductivity = 145 µmhos; Temperature = 9.25 °C; Salinity = 0; pH = 5
DW-04	DAF88G APP05 MALX60	12/6/98 1315	Grab; Micro-filter present	Bedrock-HF Unknown depth	Grab drinking water sample collected from a residential private drinking water supply (166 River Road). Sample was collected to document if hazardous substances have impacted the private drinking water supply. Conductivity = 180 µmhos; Temperature = 13 °C; Salinity = 0; pH = 6
DW-05*	DAF89G APP06 MALX61 DAF89G	12/6/98 1045	Grab; No filter system	Overburden Open Borehole 14 ft bgs	Grab drinking water sample collected from a private residential drinking water supply (Lot No. 65.1). Sample was collected to document if hazardous substances have impacted the private drinking water supply. Conductivity = 245 µmhos; Temperature = 11 °C; Salinity = 0; pH = 6.5

Table 10

Sample Summary: Blood Farm Dump
Drinking Water Samples Collected by START on 6 December 1998 (Concluded)

Sample Location No.	Traffic Report No.	Date/ Time (hrs)	Remarks	Well Type/ Approximate Depth	Sample Source
MATRIX: Aqueous - Drinking Water (Concluded)					
DW-06	DAF90G APP07 MALX62	12/6/98 1152	Grab	Unknown	Grab drinking water sample collected from a private residential drinking water supply (Lot No. 59.3). Sample was collected to document if hazardous substances have impacted the private drinking water supply. Conductivity = 175 µmhos; Temperature = 12 °C; Salinity = 0; pH = 6
DW-07	DAF08H APP08 MALX63	12/6/98 1130	Grab; GAC filter system	Bedrock-HF 500 ft bgs	Grab drinking water sample collected from a private residential drinking water supply (Lot No. 62). Sample was collected to document if hazardous substances have impacted the private drinking water supply. GAC filter system installed reportedly due to high iron concentrations. Sample collected after filter and is therefore not indicative of actual groundwater concentrations. Conductivity = 140 µmhos; Temperature = 11 °C; Salinity = 0; pH = 6
DW-08*	DAF09H APP09 MALX64 DAF09H	12/6/98 1230	Grab; No filter system	Bedrock-HF 500 ft bgs	Grab drinking water sample collected from a presumed upgradient private residential drinking water supply well (Lot No. 58). Sample was collected to document background groundwater conditions. Conductivity = 425 µmhos; Temperature = 11 °C; Salinity = 0; pH = 6
DW-09	DAF15H APP10 MALX65	12/6/98 0950	Grab; No filter system	Bedrock Drilled 500 ft bgs (390 ft bgs to pump)	Grab drinking water sample collected from a private residential drinking water supply well (Lot No. 60) to document if hazardous substances have impacted the private drinking water supply. Conductivity = 150 µmhos; Temperature = 10 °C; Salinity = 0; pH = 6

HF = Hydrofractured at installation.
ft = Feet.
bgs = Below ground surface.
MS/MSD = Matrix spike/matrix spike duplicate.
VOC = Volatile organic compound.
µmhos = Micromilliohms.
°C = Degrees celsius.
GAC = Granular activated carbon.
* = Sample was analyzed for dioxin.
hrs = Hours.

[21]

Table 11 is a summary of substances detected through CLP and DAS analyses of START drinking water samples. For each sample, a compound or element is listed if it is detected at three times or greater than the reference sample concentration (DW-08). However, if the compound or element is not detected in the reference sample, the reference sample's SDL is used as the reference value. These compounds or elements are listed if they occurred at a value equal to or greater than the reference sample's SDL and are designated by their approximate relative concentration above these values. Samples DW-03 and DW-05 were collected from overburden supply wells. The reference well selected for comparison (DW-08) is a 500 ft deep bedrock supply well. An upgradient overburden well could not be located and, as a result, the upgradient concentrations of certain naturally-occurring elements in overburden could not be determined. For comparative purposes, sample results for DW-03 and DW-05 were compared to DW-08; however, it cannot be accurately determined if the elevated substances in these wells are directly attributable to an on-site source or due to natural variation.

Complete analytical results of START drinking water samples including quantitation and detection limits are presented in Attachment B. Sample results qualified with a "J" on analytical tables are considered approximate because of limitations identified during data validation. In addition, organic sample results reported at concentrations below quantitation limits and confirmed by mass spectrometry are also qualified by a "J" and considered approximate.

Table 11

Summary of Analytical Results
Drinking Water Sample Analysis for Blood Farm Dump

Sample Location	Compound/ Element	Sample Concentration	Reference Concentration	Comments
DW-01 DAF85G APP02 MALX57	**INORGANICS**			
	Iron	2,460 ppb	70.8 ppb	34.7 × Ref
	Manganese	398 ppb	10.4 ppb	38.3 × Ref
DW-02 DAF86G APP03 MALX58	**INORGANICS**			
	Iron	2,660 ppb	70.8 ppb	37.6 × Ref
	Manganese	434 ppb	10.4 ppb	41.7 × Ref
DW-03* DAF87G APP04 MALX59	**INORGANICS**			
	Aluminum	290 ppb	34 UJ ppb	8.5 × SDL
	Arsenic	15.7 ppb	4 U ppb	3.9 × SDL
	Chromium	30.3 ppb	2 U ppb	15.2 × SDL
	Copper	548 ppb	16.9 ppb	32.4 × Ref
	Iron	37,800 ppb	70.8 ppb	534 × Ref
	Lead	180 ppb	2 U ppb	90 × SDL
	Manganese	39.1 ppb	10.4 ppb	3.8 × Ref
	Vanadium	7.8 ppb	2 U ppb	3.9 × SDL

Table 11

Summary of Analytical Results
Drinking Water Sample Analysis for Blood Farm Dump (Concluded)

Sample Location	Compound/ Element	Sample Concentration	Reference Concentration	Comments
DW-04 DAF88G APP05 MALX60	**INORGANICS**			
	Iron	1,710 ppb	70.8 ppb	24.2 × Ref
	Manganese	157 ppb	10.4 ppb	15.1 × Ref
DW-05* DAF89G APP06 MA1X61	**INORGANICS**			
	Copper	51.7 ppb	16.9 ppb	3.1 × Ref
	Iron	379 ppb	70.8 ppb	5.4 × Ref
	Nickel	1.1 J ppb	1 U ppb	1.1 × SDL
DW-09 DAF09H APP10 MAKX65	**INORGANICS**			
	Manganese	77.9 ppb	10.4 ppb	7.5 × Ref

Ref – Reference value.
SDL = Sample Detection Limit
J = Quantitation is approximate due to limitations identified during the quality control review.
U = Indicates the sample was analyzed but not detected and reports the detection value.
UJ = The reported quantitation limits are qualified estimated.
ppb = Parts per billion.

* = Samples DW-03 and DW-05 were collected from overburden supply wells. The reference well (DW-08) was a 500 ft deep bedrock supply well. An upgradient overburden well could not be located and, as a result, the upgradient concentrations of certain naturally-occurring elements in overburden could not be determined. For comparative purposes, sample results for DW-03 and DW-05 were compared to DW-08; however, it cannot be accurately determined if the elevated concentrations of substances in these wells are directly attributable to on-site source or due to natural variation.

[30; 33; 34; 35]

No VOCs, SVOCs, pesticides, PCBs, dioxins, or cyanide were detected above reference criteria in any of the drinking water samples collected by START on 6 December 1998. All drinking water analytical results for the pesticide methoxychlor were rejected due to limitations identified during the quality control review.

Table 12 provides a comparison of analytes detected in START 1998 drinking water samples to EPA maximum contaminant levels (MCLs) and State of Vermont Primary and Secondary action levels. MCLs are Federal drinking water standards applied to public water supplies. All drinking water samples collected by START were collected from private drinking water supplies, and MCL values are presented for comparison purposes only. The State of Vermont Chapter 12 Groundwater Protection Rule and Strategy includes Primary and Secondary Enforcement Standards and Primary and Secondary Preventive Action Levels (PALs).

Table 12

Comparison of Analytes Detected in START Drinking Water Samples to U.S. Environmental Protection Agency and State of Vermont Action Levels Blood Farm Dump

Analyte detected by START	EPA MCL*	Primary ES*	Primary PAL*	Secondary ES*	Secondary PAL*	Exceedences in START 1998 Drinking Water Samples
Aluminum	NL	NL	NL	**200**	**100**	290 in DW-03.
Arsenic	50	50	5	NL	NL	None.
Chromium	100	100	50	NL	NL	None.
Copper	1,300	1,300	650	1,000	**500**	548 in DW-03.
Lead	**15**	**15**	**5**	NL	NL	180 in DW-03.
Iron	NL	NL	NL	**300**	**150**	2,460 in DW-01. 2,660 in DW-02. 37,800 in DW-03. 1,710 in DW-04. 379 in DW-05.
Manganese	NL	840	**420**	**50**	**25**	398 in DW-01. 434 in DW-02.
Nickel	NL	100	50	NL	NL	None.
Vanadium	NL	NL	NL	NL	NL	None.

* – All Values are in Parts Per Billion (ppb).
EPA = U.S. Environmental Protection Agency
MCL = Maximum Contaminant Level; bolded value indicates exceedence.
NL = Substance not listed in reference.
ES = State of Vermont Groundwater Quality Enforcement Standard; bolded value indicates exceedence.
PAL = State of Vermont Groundwater Quality Preventive Action Level; bolded value indicates exceedence.

[36; 37]

START personnel informed EPA Region I of exceedences of the EPA MCL and the Vermont Primary Groundwater Quality Enforcement Standard for lead in sample DW-03 [38]. Sample DW-03 was collected from an overburden supply well located adjacent to the Grace Currier Stream streambed. EPA Region I informed the property owner of the exceedence, and the well has reportedly been taken off-line by the owner. Residents served by this overburden supply well (DW-03) also utilize a bedrock drinking water supply well located on Lot Nos. 63 and 64. Samples DW-01 and DW-02 were collected from this bedrock supply well.

Although exceedences of Vermont State standards were documented in drinking water samples, none of the inorganic elements detected in drinking water were documented above reference criteria in on-site sources (contaminated soils). In addition, most of the substances detected were noted in an overburden well for which no background was identified. START observed that this well is located within 10 ft of an intermittent streambed. During the START sampling event, the stream was not

flowing; however, surface water may directly enter this well or be a source of recharge for water in this well. Since none of the groundwater samples were filtered, the contribution of metal contamination due to particulates in the water and contact with pipes could not be ascertained. Based on historical and START analytical results, no release to groundwater (drinking water) from on-site soils has been documented to date.

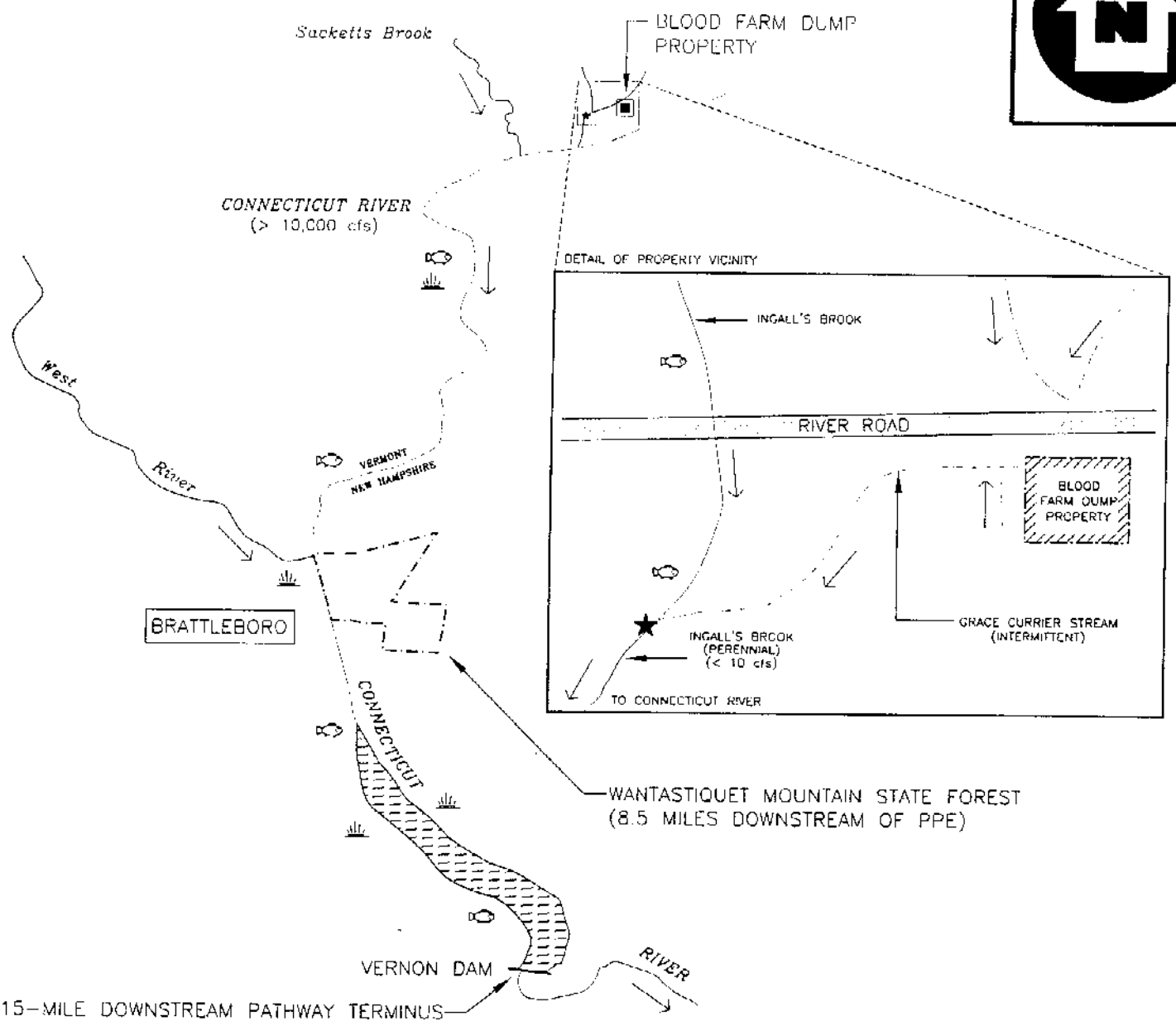
SURFACE WATER PATHWAY

The 15-mile downstream pathway for the Blood Farm Dump property is comprised of one perennial stream and the Connecticut River. The perennial stream is unnamed on the U.S. Geological Survey (USGS) topographic map but is locally referred to as Ingall's Brook [8-13]. Surface water which befalls the property either infiltrates into the ground surface or flows overland to the west toward an intermittent stream, which is also unnamed on the associated USGS topographic map but is locally referred to as "Grace Currier Stream." Grace Currier Stream is located near the western portion of the Blood Farm Dump property. Grace Currier Stream intermittently flows west to its confluence with Ingall's Brook [2, p. 21]. The probable point of entry (PPE) to the surface water pathway is located along Ingall's Brook, at the confluence of Grace Currier Stream and Ingall's Brook. Ingall's Brook flows south for 0.4 miles until its confluence with the Connecticut River (Figure 3). The 15-mile downstream pathway terminus is located along the Connecticut River in the vicinity of the Vernon Dam [8-13].

According to a local concerned citizen, references in previous file information to "Baldwin Brook" actually refer to "Ingall's Brook". According to the citizen, "Baldwin Brook" is located on the mountain to the north of the Blood Farm Dump property and is not associated with the Blood Farm Dump property [2, p. 21].

The flow rates of the perennial surface water bodies along the 15-mile downstream surface water pathway were calculated by multiplying the square mileage of the drainage basin area by the USGS estimating factor of 1.8 cubic ft per second (cfs) per square mile (mi^2). This factor is an estimate and average of the intensity, rate, and frequency of overland flow in New England. The mean annual flow rate for Ingall's Brook was estimated to be 2.4 cfs [48].

Flow rate data were also obtained from USGS Gaging Stations. The average annual flow rate of the Connecticut River is approximately 9,518 cfs at USGS Gaging Station No. 01154500 in North Walpole, New Hampshire, 14 miles upstream of the confluence of Ingall's Brook and the Connecticut River. The flow rate of the Connecticut River is presumed to be greater than 10,000 cfs at that confluence. Table 13 describes surface water bodies located along the 15-mile downstream pathway for the Blood Farm Dump property.



Base map from a portion of the USGS Keene, NH-VT-MA 30-minute X 60-minute topographic quadrangle (1986).
Discharge interpolated from USGS gaging station data obtained from Cooksley and others (1997) and Socolow and others (1997).

LEGEND

★ PROBABLE POINT OF ENTRY (PPE)

FISHERY

WETLANDS

FLOW DIRECTION OF SURFACE WATER BODY

cfs CUBIC FEET PER SECOND

SURFACE WATER PATHWAY SKETCH

BLOOD FARM DUMP
RIVER ROAD
PUTNEY, VERMONT

WESTON® MANAGERS DESIGNERS/CONSULTANTS

REGION I SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM

FDD No.	DRAWN BY:	LAST MODIFIED:
00-05-0048	C. SKLANEY	09/21/98

File Name: S:\00050048\BLOOD\SWPBFD.DWG

FIGURE 3

Table 13

Surface Water Bodies Along the 15-Mile Downstream Pathway from Blood Farm Dump

Surface Water Body	Descriptor[a]	Length of Reach (miles)	Flow Characteristics (cfs)[b]	Length of Wetland Frontage (miles)
Ingall's Brook*	Minimal stream	0.4	<10	0
Connecticut River	Large River	14.6	>10,000	2.3

[a] Minimal stream <10 cfs. Large river >10,000-100,000 cfs.
[b] Cubic feet per second.
* Also called "Baldwin Brook" in file information. Non-perennial water bodies (Grace Currier Stream) are not included in the above table.

[2, p. 35; 10-19]

The Connecticut River is classified as Class B Water according to the standards adopted by the Vermont Water Resources Board in accordance with the Vermont Statutes Annotated, Title 10, Section 1253. Class B Water is defined as surface water that is compatible with the following beneficial values and uses: recreational use including swimming; irrigation and other agricultural uses; public water supply with filtration and disinfection; and high quality habitat for aquatic biota, fish, and wildlife. The Connecticut River is known for its significant sport fishing for many species of fish. The river's spawning trout play an important role in supporting the seasonal and residential populations of the area. The Connecticut River supports considerable recreational boating [6, p. 8].

There are approximately 2.3 miles of wetland frontage, a State forest, a State-threatened species habitat, and a water body protected under the Clean Water Act located along the 15-mile downstream surface water pathway [2; 14-20]. Table 14 describes sensitive environments located along the 15-mile downstream pathway for the property.

Table 14

Sensitive Environments Along the 15-Mile Downstream Surface Water Pathway from Blood Farm Dump

Sensitive Environment Name	Sensitive Environment Type	Surface Water Body	Downstream Distance from PPE (miles)	Flow Rate at Environment (cfs)[a]
Clean Water Act	Clean Water Act	Ingall's Brook	0	<10
Wetlands	2.3 Miles Wetlands	Connecticut River	3.2 - 15	>10,000
Wantastiquet Mt. State Forest	State Designated Natural Area	Connecticut River	8.5	> 10,000

Table 14

Sensitive Environments Along the 15-Mile Downstream Surface Water Pathway from Blood Farm Dump (Concluded)

Sensitive Environment Name	Sensitive Environment Type	Surface Water Body	Downstream Distance from PPE (miles)	Flow Rate at Environment (cfs)[a]
Engelmann's Quillwort	State-Threatened Species	Connecticut River*	3.2 - 15	> 10,000

[a]Cubic feet per second
PPE = Probable point of entry
* – START assumes that the threatened species occurs along the Connecticut River, as the location is not specified by State personnel.

[2, p. 35; 10-21; 24]

The owner of the property abutting the western portion of the Blood Farm Dump property has installed PVC monitoring wells along Grace Currier Stream, Ingall's Brook, and the Connecticut River and has tested for general field parameters (such as conductivity) and conducted selected metals analyses using field test kits. Due to a lack of quality control and a lack of certified data, these sampling results cannot be used in this evaluation.

On 7 December 1998, START personnel collected surface water and sediment samples from Grace Currier Stream and Ingall's Brook as part of the Blood Farm Dump ESI. START surface water and sediment samples were analyzed by CLP and DAS laboratories for VOCs, SVOCs, pesticides, PCBs, total metals, and cyanide. Five sediment samples were also analyzed for dioxin by a DAS laboratory. Table 15 provides a summary of START surface water and sediment sample locations.

Table 15

Sample Summary: Blood Farm Dump
Surface Water and Sediment Samples Collected by START on 7 December 1998

Sample Location No.	Traffic Report No.	Date/ Time (hrs)	Remarks	Sample Location	Sample Source
MATRIX: Aqueous - Surface water					
SW-05*	ANY10 MALX40	12/7/98 1115	Grab	42° 57′ 49.2″ N 72° 30′ 47.7″ W	Grab surface water sample collected from Ingall's Brook south of the railroad tracks. Conductivity = 170 µmhos; T = 8 °C; Salinity = 0; pH = 5
SW-06	ANY11 MALX41	12/7/98 1345	Grab	42° 58′ 13.1″ N 72° 30′ 20.5″ W	Reference grab surface water sample collected from Ingall's Brook north of River Road. Conductivity = 120 µmhos; T = 7 °C; Salinity = 0; pH = 5
SW-07	ANY12 MALX42	12/7/98 1310	Grab	42° 58′ 01.6″ N 72° 30′ 23.0″ W	Grab surface water sample collected from Ingall's Brook north of Interstate Route 91. Conductivity = 170 µmhos; T =10 °C; Salinity = 0; pH = 5
SW-08	ANY13 MALX43	12/7/98 1315	Grab	42° 58′ 01.6″ N 72° 30′ 23.0″ W	Replicate of surface water sample SW-07, collected for quality control. Conductivity = 170 µmhos; T = 10 °C; Salinity = 0; pH = 5
MATRIX: Sediment**					
SD-08*	DAF96F	12/7/98 1325	Grab	42° 58′ 01.7″ N 72° 30′ 22.9″ W Depth <6 inches	Sediment sample collected from Ingall's Brook; north of Interstate 91. Sample consisted of grey medium gravel with a little coarse sand, wet.
SD-09	DAF97F	12/7/98 1355	Grab	42° 58′ 13.1″ N 72° 30′ 20.4″ W Depth <6 inches	Reference sediment sample collected from Ingall's Brook; north of River Road. Sample consisted of grey clay with some silt, trace gravel, wet.
SD-10	DAF98F	12/7/98 1405	Grab	42° 58′ 13.1″ N 72° 30′ 20.3″ W Depth <6 inches	Sediment sample collected from Ingall's Brook; north of River Road as an additional reference for metals analysis only. Sample consisted of grey fine-to-medium gravel with a little silt, wet.

Table 15

Sample Summary: Blood Farm Dump
Surface Water and Sediment Samples Collected by START on 7 December 1998
(Continued)

Sample Location No.	Traffic Report No.	Date/ Time (hrs)	Remarks	Sample Location	Sample Source
MATRIX: Sediment**					
SD-11	DAF99F	12/7/98 1140	Grab	42° 58′ 04.6″ N 72° 30′ 19.6″ W Depth <6 inches	Sediment sample collected from Grace Currier Stream bed; prior to the confluence of Grace Currier Stream and Ingall's Brook. Sample consisted of grey coarse sand with a little fine gravel (dry).
SD-12	DAF46G	12/7/98 1115	Grab	42° 58′ 09.6″ N 72° 30′ 09.3″ W Depth <6 inches	Sediment sample collected from Grace Currier Stream bed; in the vicinity of the residential trailer (see Figure 2). Sample consisted of grey coarse sand and fine gravel, and a little clay (wet). Localized orange discoloration and an organic sheen on the surface water pools was observed.
SD-13 ◆	DAF47G	12/7/98 0915	Grab	42° 58′ 10.2″ N 72° 30′ 00.2″ W Depth <6 inches	Sediment sample collected from Grace Currier Stream bed approximately 640 ft downstream from the access road to the Blood Farm Dump property. Medium brown sand with some silt and organic matter (roots), little clay (dry).
SD-14 ◆	DAF48G	12/7/98 0930	Grab	42° 58′ 10.2″ N 72° 30′ 00.2″ W Depth <6 inches	Duplicate of sample SD-13 collected for quality control.
SD-15 ◆	DAF49G	12/7/98 0945	Grab	42° 58′ 09.3″ N 72° 29′ 53.1″ W Depth <6 inches	Sediment sample collected from a low-lying intermittently wet area located west of the Blood Farm Dump property. Sample consisted of light brown silt with some sand (dry).
SD-16 ◆	DAF50G	12/7/98 0905	Grab	42° 58′ 15.0″ N 72° 29′ 53.9″ W Depth <6 inches	Sediment sample collected from Grace Currier Stream bed; north of River Road. Sample appeared dark brown to black and consisted of gravel with coarse sand and some organic matter (saturated).

Table 15

Sample Summary: Blood Farm Dump
Surface Water and Sediment Samples Collected by START on 7 December 1998
(Concluded)

Sample Location No.	Traffic Report No.	Date/ Time (hrs)	Remarks	Sample Location	Sample Source
MATRIX: Sediment**					
SD-17	DAF51G	12/7/98 0910	Grab	42° 58′ 15.0″ N 72° 29′ 54.0″ W Depth <6 inches	Sediment sample collected from Grace Currier Stream bed; north of River Road to serve as an additional reference sample for metals analysis only. Sample appeared dark brown to black and consisted of gravel with coarse sand and some organic matter (saturated).
SD-18 ◆	DAF52G	12/7/98 1115	Grab	42° 57′ 52.0″ N 72° 30′ 35.2″ W Depth <6 inches	Sediment sample collected from Ingall's Brook; south of the railroad tracks and north of Connecticut River. Sample consisted of grey organic rich fine sand and silt with some orange staining at the surface water/sediment interface.

hrs = Hours.
ft = Feet.
T = Temperature.
°C = Degrees Celsius.
µmhos = Micromilliohms.
◆ = Sample was also analyzed for dioxins.

* Surface water samples SW-01 through SW-04 and sediment samples SD-01 through SD-07 were collected from Connecticut River specifically to evaluate the Putney Paper Company Sludge Disposal property and are not presented in this report.

** START sediment samples were field screened for volatile organic compounds using a Flame Ionization Detector (FID). No readings above background levels (zero units) were recorded during field screening of START sediment samples collected for the Blood Farm Dump property on 7 December 1998.

[21]

Complete analytical results of START surface water and sediment samples collected for the Blood Farm Dump property, including quantitation and detection limits, are presented in Attachment C. Sample results qualified with a "J" on analytical tables are considered approximate because of limitations identified during CLP data validation. In addition, organic sample results reported at concentrations below quantitation limits and confirmed by mass spectrometry are also qualified by a "J" and considered approximate.

Table 16 is a summary of organic compounds and inorganic elements detected through CLP and DAS analyses of START surface water and sediment samples collected for the Blood Farm Dump property. For each sample location, a compound or element is listed if it is detected at three times

or greater than the reference sample concentration. Sediment samples SD-09, SD-10, SD-16, and SD-17 serve as reference locations for sediment samples. Surface water sample SW-06 serves as a reference for surface water samples. If the compound or element is not detected in the reference sample, the reference sample's SQL (for organic analyses) or SDL (for inorganic analyses) is used as the reference value. These compounds or elements are listed if they occurred at a value equal to or greater than the reference sample's SQL or SDL and are designated by their approximate relative concentration above these values.

Table 16

Summary of Analytical Results
Surface Water and Sediment Sample Analysis for Blood Farm Dump

Sample Location	Compound/ Element	Sample Concentration	Reference Concentration	Comments
SW-05 ANY10 MALX40	**INORGANICS**			
	Selenium	5 ppb	5 U ppb	1 × SDL
SW-07 ANY12 MALX42	**INORGANICS**			
	Aluminum	833 J ppb	39 UJ ppb	21.4 × SDL
	Iron	7,180 ppb	215 ppb	33.4× Ref
	Manganese	511 ppb	90.8 ppb	5.6 × Ref
	Nickel	2.3 ppb	1 U ppb	2.3 × SDL
SW-08 ANY13 MALX43	**INORGANICS**			
	Aluminum	1,440 ppb	39 UJ ppb	36.9 × SDL
	Chromium	3.4 J ppb	2 U ppb	1.7 × SDL
	Iron	9,220 ppb	215 ppb	42.9 × Ref
	Manganese	418 ppb	90.8 ppb	4.6 × Ref
	Nickel	3.5 ppb	1 U ppb	3.5 × SDL
SD-13 DAF47G	**DIOXIN**			
	1,2,3,4,6,7,8-HpCDD	6.76 J ppt	0.749 UJ ppt	9.0 × SDL
	OCDD	68.7 J ppt	7.39 UJ ppt	9.3 × SDL
	2,3,7,8-TCDF	0.705 ppt	0.161 UJ ppt	4.4 × SDL

Table 16

Summary of Analytical Results
Surface Water and Sediment Sample Analysis for Blood Farm Dump (Concluded)

Sample Location	Compound/ Element	Sample Concentration	Reference Concentration	Comments
SD-14 DAF48G	**DIOXIN**			
	1,2,3,4,6,7,8-HpCDD	6.67 J ppt	0.749 UJ ppt	8.9 × SDL
	1,2,3,4,6,7,8-HpCDF	4.04 J ppt	0.680 UJ ppt	5.9 × SDL
	OCDD	59.1 J ppt	7.39 UJ ppt	8.0 × SDL
SD-15 DAF47G	**DIOXIN**			
	2,3,7,8-TCDF	1.02 J ppt	0.161 UJ ppt	6.3 × SDL

Ref = Reference value.
SDL = Sample Detection Limit.
J = Quantitation is approximate due to limitations identified during the quality control review.
U = Indicates the sample was analyzed but not detected and reports the detection value.
UJ = The reported quantitation limits are qualified estimated.
ppb = Parts per billion.
ppt = Parts per trillion.

[30; 39-42]

Six different inorganic elements were detected at concentrations exceeding reference criteria in START surface water samples. The inorganic elements detected in surface water samples were not detected at concentrations exceeding reference criteria in START sediment samples collected from corresponding locations or START surficial soil/source samples collected from the Blood Farm Dump property. Based on lack of attribution of these inorganic elements to on-site sources, a release to the surface water pathway has not been documented. However, dioxin was detected in sediment samples collected from Grace Currier dry streambed, and in on-site soil/source samples. Grace Currier Stream is not a perennial water body (intermittent), and samples collected from Grace Currier Stream cannot be used to evaluate the surface water pathway [30; 39-42].

Based on START surface water and sediment sample analytical data for samples collected from perennial water bodies on 7 December 1998, no substances attributable to on-site sources at the Blood Farm Dump property have been released to Ingall's Brook, and no known downstream receptors have been impacted.

SOIL EXPOSURE PATHWAY

On 2 April 1998, START personnel conducted an on-site reconnaissance of the Blood Farm Dump property [2, pp. 16-29]. START personnel observed a single abandoned residence, a dirt driveway, and grassy open spaces on Lot No. 60.1. Lot No. 60 was occupied by a residence and dog kennel business [2, pp. 15, 22]. START personnel did not observe any stressed vegetation, or terrestrial

sensitive environments at the time of the on-site reconnaissance. START personnel did observe areas of grey, clay-like material intermixed with surficial soils on Lot No. 60.1. There are no schools or day-care facilities located within 200 ft of any potential source area [2, p. 22]. Although there is fencing along Interstate Route 91 and along the western border of the property, the remainder of the property is unfenced [2, p. 22]. For the purposes of this evaluation, access to the property is considered unrestricted [2, p. 16].

On 8 November 1998, the abandoned residence located on Lot No. 60.1 was burned as part of fire training exercises conducted by several local area fire departments. START personnel observed the fire-fighting exercises and noted that very little runoff was generated and that there was no visible impact to Grace Currier Stream [2, pp. 36, 37]. START personnel additionally noted that the majority of smoke generated during on-site activities drifted in a southeasterly direction and did not significantly impinge upon the ground surface [25].

There are no employees or on-site residents associated with Lot No. 60.1 [2, pp.15, 16]. There are two on-site residents, who also work on site, and one additional on-site employee, associated with Lot No. 60 [2, p. 17]. An estimated 421 people reside within 1-radial mile of the Blood Farm Dump property [7].

In May 1990, soil boring samples were collected as part of the VT DEC SI to assess the sludge deposited on the Blood Farm Dump property [6]. Analytical results of VT DEC sludge samples indicated the presence of VOCs, PCBs, lead, and zinc at concentrations exceeding reference criteria. Refer to the Waste/Source Sampling section of this report for a discussion of analytical results for the VT DEC SI soil boring samples.

On 7 December 1998, START personnel collected seven surficial soil/source samples from the Blood Farm Dump property [21, pp. 9-69]. Based on START soil/source analytical results, one VOC; one SVOC; one PCB; four pesticides; two metals; cyanide; and 13 dioxin congeners were detected in on-site surficial soils. Refer to the Waste/Source section of this report for further discussion of START surficial soil sampling analytical results.

Although, the majority of the former source pile has been removed, START surficial soil sampling analytical results have documented residual contamination in the surficial soils. To date, no remedial actions have been taken to address residual surficial soil contamination. Access to the property is unrestricted, and it is unknown if nearby (or trespassing) populations have been impacted by the release to surficial soils.

AIR PATHWAY

An estimated 421 people reside within 1-radial mile of the Blood Farm Dump property [7]. The population within 4-radial miles of the property was estimated using equal distribution calculations of CENTRACTS data identifying population and households, for U.S. Census "Block Groups" which lie wholly or in part within individual radial distance rings measured from potential sources on the property. There are an estimated 3,853 people residing within 4-radial miles of the Blood Farm Dump property [7]. Table 17 summarizes the population within 4-radial miles of the Blood Farm Dump property.

Table 17

Estimated Population Within 4-Radial Miles of Blood Farm Dump

Radial Distance from Blood Farm Dump (miles)	Estimated Population
On a Source	2
> 0.00 to 0.25	24
> 0.25 to 0.50	79
> 0.50 to 1.00	316
> 1.00 to 2.00	604
> 2.00 to 3.00	1,195
> 3.00 to 4.00	1,633
TOTAL	3,853

[2; 7]

Sensitive environments located within 4-radial miles of the Blood Farm Dump property are summarized in the Table 18.

Table 18

Sensitive Environments Located Within 4-Radial Miles of Blood Farm Dump

Radial Distance from Blood Farm Dump (miles)	Sensitive Environment/Species (status)
On a Source	0 acres wetlands
> 0.00 to 0.25	Clean Water Act
> 0.25 to 0.50	1 acre wetlands
> 0.50 to 1.00	15 acres wetlands
> 1.00 to 2.00	72 acres wetlands
> 2.00 to 3.00	51 acres wetlands
> 3.00 to 4.00	122 acres wetlands

[14-20]

On 2 April 1998, START personnel conducted ambient air monitoring during the on-site reconnaissance of the Blood Farm Dump property using a photoionization detector (PID) and a flame ionization detector (FID). No readings greater than background levels were recorded in ambient air [2, pp. 22-23]. In addition, headspace screening of some of the PVC monitoring wells were conducted; START did not record any readings above background. In a few of the PVC monitoring wells, START did observe a "negative" deflection (of about 1 unit) on the FID.

On 8 November 1998, START personnel observed the fire-fighting training exercises conducted at the Blood Farm Dump property. START personnel photodocumented the fire training activities. The majority of smoke generated during on-site activities was observed to drift in a southeasterly direction and was not observed to significantly impinge upon the ground surface [25].

On 6 and 7 December 1998, START personnel conducted sampling activities at the Blood Farm Dump property and conducted ambient air monitoring using a PID, FID, radiation meter, and combustible gas indicator per health and safety requirements. No ambient air readings at concentrations above background levels were recorded [21, pp. 9-69].

Based on a review of file information, no known quantitative (laboratory analyzed) air samples have been collected at the Blood Farm Dump property to date. Based on a lack of analytical data, no release of hazardous substances to the ambient air from on-site sources has been documented. Based on the property history, property usage, and the source type (vegetated contaminated soil), no impacts to nearby residential populations or sensitive environments are known or suspected.

SUMMARY

The Blood Farm Dump property is located along River Road in Putney, Windham County, Vermont. The geographic coordinates for the property, as measured from the center of the property, are 42° 58′ 11.3″ north latitude and 72° 29′ 46.0″ west longitude. The original property was comprised of a 5.4-acre lot that was later subdivided into a 2-acre lot and a 3.4-acre lot. The 2-acre lot is currently owned by the Putney Paper Company (PPC) and is denoted by the Putney Tax Assessor's Office as Map/Lot No. 08-02-60.1 (Lot No. 60.1). The 2-acre lot is occupied by the foundation of a former on-site residence. The 3.4-acre lot is currently owned by Ms. Saskia Whallon and is denoted by the Putney Tax Assessor's Office as Map/Lot No. 08-02-60 (Lot No. 60). The building located on the 3.4-acre lot is currently occupied by an apartment and a dog kennel business.

An estimated 2,000 cubic yards of paper mill sludge, generated by PPC at its off-site mill facility, were reportedly disposed of on the western portion of the property in Summer 1978. The pile of paper sludge was reportedly removed in the early 1990s, possibly 1992. However, a local concerned citizen alleges that the pile was never removed and was spread over the Blood Farm Dump property. File information does not indicate that any disposal took place on Lot No. 60 (the eastern portion of the former original Blood Farm Dump property).

On 2 April 1998, Roy F. Weston, Inc. (WESTON®), Superfund Technical Assessment and Response Team (START) personnel conducted an on-site reconnaissance of the Blood Farm Dump property. START personnel observed a single abandoned residence, a dirt driveway, and grassy open spaces on Lot No. 60.1. Lot No. 60 was occupied by a residence and dog kennel business. No piles were observed on the portion of Blood Farm Dump previously noted in the file information; however, START personnel did observe a grey, clay-like material intermixed with surficial soils on Lot No. 60.1. During the reconnaissance, START personnel noted that the owner of the western abutting property has installed an estimated 200 to 250 polyvinyl chloride monitoring wells on the parcel west of the Blood Farm Dump property and along portions of the downstream surface water pathway associated with the Blood Farm Dump property. Reportedly, the monitoring wells were installed by the owner of the adjacent property abutting the western portion of the Blood Farm Dump property to assess environmental impacts from the Blood Farm Dump property and the nearby Putney Paper Company Sludge Disposal property.

On 6 and 7 December 1998, START personnel completed a sampling event for the Blood Farm Dump property Expanded Site Inspection (ESI). START personnel collected nine drinking water samples, seven surficial soil/source samples, four surface water samples, and 11 sediment samples as part of the ESI. Samples were analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs), total metals, and cyanide. Selected samples were also analyzed for dioxins.

The property is underlain by fine-grained stratified glacial drift that has a low potential for groundwater development. However, some wells in the surficial deposits can reportedly be expected to yield sufficient water for domestic use. The surficial materials on the property are mapped as pebbly-sand littoral glacial lake deposits; south of the property, the materials are mapped as postglacial fluvial sands. The underlying bedrock is slate, phyllite, and mica schist with interbedded quartzite of the Devonian Littleton formation. There are no on-site monitoring wells located on the Blood Farm Dump property, and groundwater flow direction beneath the Blood Farm Dump property

has not been determined to date, but is presumably south and west, towards the Connecticut River and Grace Currier Stream, respectively. Based on START drinking water sample analytical results, no impacts to private drinking water supply wells in the vicinity of the Blood Farm Dump property from on-site sources has been documented to date.

Grace Currier Stream, an intermittent stream located west of the Blood Farm Dump property, directs surface water west toward a perennial stream, Ingall's Brook. The confluence of Grace Currier Stream and Ingall's Brook is the most likely, most upstream probable point of entry (PPE) for contamination to enter the surface water pathway associated with the Blood Farm Dump property. Ingall's Brook flows 0.4 miles south to the Connecticut River, which comprises the remaining 14.6 miles of the 15-mile downstream surface water pathway.

On 8 November 1998, the abandoned on-site residence was burned as part of on-site fire training exercises conducted by several local area fire departments. START personnel observed the fire-fighting exercises and noted that very little runoff was generated from on-site exercises and that there was no visible impact to Grace Currier Stream. START personnel also noted that the majority of smoke generated during on-site activities drifted in a southeasterly direction and did not significantly impinge upon the ground surface. It is unknown if subsequent precipitation events caused residual contaminants to flow into Grace Currier Stream.

Based on START surface water and sediment sample analytical results, no impacts to the downstream surface water pathway were documented from on-site sources. Dioxin congeners, which are at least partially attributable to the Blood Farm Dump property, were detected in sediment samples collected from Grace Currier Stream, a non-perennial water body.

START surficial soil/source sample analytical results documented the presence of one SVOC (which was also detected in the equipment blank sample), four pesticides, the PCB compound Aroclor-1254, two inorganic elements, cyanide, and 13 dioxin congeners in surficial soils at Blood Farm Dump in the alleged area of paper sludge disposal. Based on START sampling results, a release of hazardous substances to surficial soils at the Blood Farm Dump property has been documented. To date, no known remedial actions (except removal of the pile) have been taken to address the release to on-site soils. A local concerned citizen alleges that the pile was never removed and was spread out over the property.

There are no schools or day-care facilities located within 200 feet of any potential source area. There are no on-site residents or workers located on Lot No. 60.1. There are two on-site residents, who also work on site, and one additional on-site worker associated with Lot No. 60. An estimated 421 people reside within 1-radial mile of the Blood Farm Dump property. Analytical results of START surficial soil samples document a release of hazardous substances to on-site surficial soils. Access to the property is unrestricted and it is unknown if nearby populations have been impacted by this release.

BLOOD FARM DUMP
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ATTACHMENT A

BLOOD FARM DUMP

SURFICIAL SOIL/SOURCE SAMPLE ANALYTICAL RESULTS START

Samples Collected 6 December 1998

SITE: PUTNEY PAPER COMPANY SLUDGE DISPOSAL
CASE: 26713 SDG: APP02
LABORATORY: CEIMIC CORPORATION

TABLE 2
VOLATILE SOIL ANALYSIS - LOW LEVEL
µg/kg

SAMPLE NUMBER:		APP11	APP12	APP13	APP14	APP15	APP16
SAMPLE LOCATION:		SO-03	SO-04	SO-05	SO-06	SO-07	SO-08
LABORATORY NUMBER:		981006-10	981006-11	981006-12	981006-13	981006-14	981006-15
COMPOUND	CRQL						
Chloromethane	10	13 U	13 U	13 U	13 U	27 U	12 U
Bromomethane	10	13 U	13 U	13 U	13 U	27 U	12 U
Vinyl Chloride	10	13 U	13 U	13 U	13 U	27 U	12 U
Chloroethane	10	13 UJ	13 UJ	13 UJ	13 UJ	27 U	12 U
Methylene Chloride	10	4 J	13 U	6 J	8 J	27 U	12 U
Acetone	10	13 U	13 U	13 U	13 U	430	12 U
Carbon Disulfide	10	13 UJ	13 UJ	13 UJ	13 UJ	27 U	12 U
1,1-Dichloroethene	10	13 UJ	13 UJ	13 UJ	13 UJ	27 U	12 U
1,1-Dichloroethane	10	13 U	13 U	13 U	13 U	27 U	12 U
1,2-Dichloroethene (Total)	10	13 U	13 U	13 U	13 U	27 U	12 U
Chloroform	10	13 U	13 U	13 U	13 U	27 U	12 U
1,2-Dichloroethane	10	13 U	13 U	13 U	13 U	27 U	12 U
2-Butanone	10	13 U	13 U	13 U	13 U	27 U	12 U
1,1,1-Trichloroethane	10	13 U	13 U	13 UJ	13 U	27 U	12 U
Carbon Tetrachloride	10	13 U	13 U	13 UJ	13 U	27 U	12 U
Bromodichloromethane	10	13 U	13 U	13 UJ	13 U	27 U	12 U
1,2-Dichloropropane	10	13 U	13 U	13 UJ	13 U	27 U	12 U
cis-1,3-Dichloropropene	10	13 U	13 U	13 UJ	13 U	27 U	12 U
Trichloroethene	10	13 U	13 UJ	13 UJ	13 U	27 U	12 U
Dibromochloromethane	10	13 U	13 U	13 UJ	13 U	27 U	12 U
1,1,2-Trichloroethane	10	13 U	13 U	13 UJ	13 U	27 U	12 U
Benzene	10	13 U	13 UJ	13 UJ	13 U	27 U	12 U
trans-1,3-Dichloropropene	10	13 U	13 U	13 UJ	13 U	27 U	12 U
Bromoform	10	13 U	13 U	13 UJ	13 U	27 U	12 U
4-Methyl-2-pentanone	10	13 U	13 U	13 UJ	13 U	27 U	12 U
2-Hexanone	10	13 UJ	13 UJ	13 UJ	13 UJ	27 UJ	12 UJ
Tetrachloroethene	10	13 U	13 U	13 UJ	13 U	27 U	12 U
1,1,2,2-Tetrachloroethane	10	13 U	13 U	13 UJ	13 U	27 U	12 U
Toluene	10	13 U	13 UJ	13 UJ	13 U	27 U	12 U
Chlorobenzene	10	13 U	13 UJ	13 UJ	13 U	27 U	12 U
Ethylbenzene	10	13 U	13 U	13 UJ	13 U	27 U	12 U
Styrene	10	13 U	13 U	13 UJ	13 U	27 U	12 U
Xylene (total)	10	13 U	13 U	13 UJ	13 U	27 U	12 U
DILUTION FACTOR:		1.0	1.0	1.0	1.0	2.0	1.0
DATE SAMPLED:		12/06/98	12/06/98	12/06/98	12/06/98	12/06/98	12/06/98
DATE ANALYZED:		12/09/98	12/09/98	12/09/98	12/09/98	12/10/98	12/10/98
% MOISTURE:		23	25	25	23	25	16

NOTE: RESULTS ARE REPORTED ON A DRY WEIGHT BASIS.

SITE: PUTNEY PAPER COMPANY SLUDGE DISPOSAL
CASE: 26713 SDG: APP02
LABORATORY: CEIMIC CORPORATION

TABLE 1
VOLATILE AQUEOUS ANALYSIS
µg/L

SAMPLE NUMBER:		APP17	APP18
SAMPLE LOCATION:		RB-03	TB-01
LABORATORY NUMBER:		981006-16	981006-17
COMPOUND	CRQL		
Chloromethane	10	10 U	10 U
Bromomethane	10	10 UJ	10 UJ
Vinyl Chloride	10	10 U	10 U
Chloroethane	10	10 U	10 U
Methylene Chloride	10	10 U	10 U
Acetone	10	10 UJ	10 UJ
Carbon Disulfide	10	10 U	10 U
1,1-Dichloroethene	10	10 U	10 U
1,1-Dichloroethane	10	10 U	10 U
1,2-Dichloroethene (Total)	10	10 U	10 U
Chloroform	10	10 U	10 U
1,2-Dichloroethane	10	10 U	10 U
2-Butanone	10	10 UJ	10 UJ
1,1,1-Trichloroethane	10	10 U	10 U
Carbon Tetrachloride	10	10 U	10 U
Bromodichloromethane	10	10 U	10 U
1,2-Dichloropropane	10	10 U	10 U
cis-1,3-Dichloropropene	10	10 U	10 U
Trichloroethene	10	10 U	10 U
Dibromochloromethane	10	10 U	10 U
1,1,2-Trichloroethane	10	10 U	10 U
Benzene	10	10 U	10 U
trans-1,3-Dichloropropene	10	10 U	10 U
Bromoform	10	10 U	10 U
4-Methyl-2-pentanone	10	10 U	10 U
2-Hexanone	10	10 U	10 U
Tetrachloroethene	10	10 U	10 U
1,1,2,2-Tetrachloroethane	10	10 U	10 U
Toluene	10	10 U	10 U
Chlorobenzene	10	10 U	10 U
Ethylbenzene	10	10 U	10 U
Styrene	10	10 U	10 U
Xylene (total)	10	10 U	10 U
DILUTION FACTOR:		1.0	1.0
DATE SAMPLED:		12/06/98	12/06/98
DATE ANALYZED:		12/10/98	12/10/98

SITE: PUTNEY PAPER COMPANY SLUDGE DISPOSAL
CASE: 26713 SDG: APP02
LABORATORY: CEIMIC CORPORATIO

TABLE 4
SEMIVOLATILE SOIL ANALYSIS
µg/kg

SAMPLE NUMBER:		APP11	APP12	APP13	APP14	APP15	APP16
SAMPLE LOCATION:		SO-03	SO-04	SO-05	SO-06	SO-07	SO-08
LABORATORY NUMBER:		981006-10	981006-11	981006-12	981006-13	981006-14	981006-15
COMPOUND	CRQL						
Phenol	330	860 U	870 U	870 U	810 U	810 U	1900 U
bis(2-Chloroethyl)ether	330	860 U	870 U	870 U	810 U	810 U	1900 U
2-Chlorophenol	330	860 U	870 U	870 U	810 U	810 U	1900 U
1,3-Dichlorobenzene	330	860 U	870 U	870 U	810 U	810 U	1900 U
1,4-Dichlorobenzene	330	860 U	870 U	870 U	810 U	810 U	1900 U
1,2-Dichlorobenzene	330	860 U	870 U	870 U	810 U	810 U	1900 U
2-Methylphenol	330	860 U	870 U	870 U	810 U	810 U	1900 U
2,2'-Oxybis(1-chloropropane)	330	860 UJ	870 UJ	870 UJ	810 UJ	810 U	1900 U
4-Methylphenol	330	860 U	870 U	870 U	810 U	810 U	1900 U
N-Nitroso-di-n-propylamine	330	860 U	870 U	870 U	810 U	810 U	1900 U
Hexachloroethane	330	860 U	870 U	870 U	810 U	810 U	1900 U
Nitrobenzene	330	860 U	870 U	870 U	810 U	810 U	1900 U
Isophorone	330	860 U	870 U	870 U	810 U	810 U	1900 U
2-Nitrophenol	330	860 U	870 U	870 U	810 U	810 U	1900 U
2,4-Dimethylphenol	330	860 U	870 U	870 U	810 U	810 U	1900 U
bis(2-Chloroethoxy)methane	330	860 U	870 U	870 U	810 U	810 U	1900 U
2,4-Dichlorophenol	330	860 U	870 U	870 U	810 U	810 U	1900 U
1,2,4-Trichlorobenzene	330	860 U	870 U	870 U	810 U	810 U	1900 U
Naphthalene	330	860 U	870 U	870 U	810 U	810 U	1900 U
4-Chloroaniline	330	860 U	870 U	870 U	810 U	810 UJ	1900 UJ
Hexachlorobutadiene	330	860 U	870 U	870 U	810 U	810 U	1900 U
4-Chloro-3-methylphenol	330	860 U	870 U	870 U	810 U	810 U	1900 U
2-Methylnaphthalene	330	860 U	870 U	870 U	810 U	810 U	1900 U
Hexachlorocyclopentadiene	330	860 U	870 U	870 U	810 U	810 UJ	1900 UJ
2,4,6-Trichlorophenol	330	860 U	870 U	870 U	810 U	810 U	1900 U
2,4,5-Trichlorophenol	830	2200 U	2200 U	2200 U	2000 U	2000 U	4800 U
2-Chloronaphthalene	330	860 U	870 U	870 U	810 U	810 U	1900 U
2-Nitroaniline	830	2200 U	2200 U	2200 U	2000 U	2000 U	4800 U
Dimethylphthalate	330	860 U	870 U	870 U	810 U	810 U	1900 U
Acenaphthylene	330	860 U	870 U	870 U	810 U	810 U	1900 U
2,6-Dinitrotoluene	330	860 U	870 U	870 U	810 U	810 U	1900 U
3-Nitroaniline	830	2200 U	2200 U	2200 U	2000 U	2000 U	4800 U
Acenaphthene	330	860 U	870 U	870 U	810 U	810 U	1900 U
2,4-Dinitrophenol	830	2200 UJ	2200 UJ	2200 UJ	2000 UJ	2000 U	4800 U
4-Nitrophenol	830	2200 U	2200 U	2200 U	2000 U	2000 U	4800 U
Dibenzofuran	330	860 U	870 U	870 U	810 U	810 U	1900 U
2,4-Dinitrotoluene	330	860 U	870 U	870 U	810 U	810 U	1900 U
Diethylphthalate	330	860 U	870 U	870 U	810 U	810 U	1900 U
4-Chlorophenyl-phenylether	330	860 U	870 U	870 U	810 U	810 U	1900 U
Fluorene	330	860 U	870 U	870 U	810 U	810 U	1900 U
4-Nitroaniline	830	2200 U	2200 U	2200 U	2000 U	2000 U	4800 U
4,6-Dinitro-2-methylphenol	830	2200 U	2200 U	2200 U	2000 U	2000 U	4800 U
N-Nitrosodiphenylamine(1)	330	860 U	870 U	870 U	810 U	810 U	1900 U
4-Bromophenyl-phenylether	330	860 U	870 U	870 U	810 U	810 U	1900 U
Hexachlorobenzene	330	860 U	870 U	870 U	810 U	810 U	1900 U
Pentachlorophenol	830	2200 U	2200 U	2200 U	2000 U	2000 U	4800 U
Phenanthrene	330	860 U	870 U	870 U	810 U	810 U	1900 U
Anthracene	330	860 U	870 U	870 U	810 U	810 U	1900 U
Carbazole	330	860 U	870 U	870 U	810 U	810 U	1900 U
Di-n-butylphthalate	330	580 J	99 J	98 J	93 J	93 J	1900 U
Fluoranthene	330	860 U	870 U	870 U	810 U	810 U	1900 U
Pyrene	330	860 U	870 U	870 U	810 U	810 UJ	1900 UJ
Butylbenzylphthalate	330	2000 EB	870 U	870 U	810 U	810 UJ	1900 UJ
3,3'-Dichlorobenzidine	330	860 U	870 U	870 U	810 U	810 UJ	1900 UJ
Benzo(a)anthracene	330	860 U	870 U	870 U	810 U	810 UJ	1900 UJ
Chrysene	330	860 U	870 U	870 U	810 U	810 UJ	1900 UJ
Bis(2-ethylhexyl)phthalate	330	350 JEB	150 JEB	230 JEB	210 JEB	210 JEB	9900 JEB
Di-n-octylphthalate	330	860 UJ	870 UJ	870 UJ	810 UJ	810 UJ	1900 UJ
Benzo(b)fluoranthene	330	860 UJ	870 UJ	870 UJ	810 UJ	810 UJ	1900 UJ
Benzo(k)fluoranthene	330	860 U	870 U	870 U	810 U	810 U	1900 U
Benzo(a)pyrene	330	860 UJ	870 UJ	870 UJ	810 UJ	810 U	1900 U
Indeno(1,2,3-cd)pyrene	330	860 U	870 U	870 U	810 U	810 U	1900 U
Dibenz(a,h)anthracene	330	860 UJ	870 UJ	870 UJ	810 UJ	810 U	1900 U
Benzo(g,h,i)perylene	330	860 UJ	870 UJ	870 UJ	810 UJ	810 U	1900 U
DILUTION FACTOR:		2.0	2.0	2.0	2.0	2.0	5.0
DATE SAMPLED:		12/06/98	12/06/98	12/06/98	12/06/98	12/06/98	12/06/98
DATE EXTRACTED:		12/10/98	12/10/98	12/10/98	12/10/98	12/10/98	12/10/98
DATE ANALYZED:		12/22/98	12/22/98	12/22/98	12/22/98	12/28/98	12/28/98
% MOISTURE:		24	25	24	19	19	15

NOTE: RESULTS ARE REPORTED ON A DRY WEIGHT BASIS.

SITE: PUTNEY PAPER COMPANY SLUDGE DISPOSAL
CASE: 26713 SDG: APP02
LABORATORY: CEIMIC CORPORATION

TABLE 3
SEMIVOLATILE AQUEOUS ANALYSIS
µg/L

SAMPLE NUMBER:		APP17
SAMPLE LOCATION:		RB-03
LABORATORY NUMBER:		981006-16
COMPOUND	CRQL	
Phenol	10	10 U
bis(2-Chloroethyl)ether	10	10 U
2-Chlorophenol	10	10 U
1,3-Dichlorobenzene	10	10 U
1,4-Dichlorobenzene	10	10 U
1,2-Dichlorobenzene	10	10 U
2-Methylphenol	10	10 U
2,2'-Oxybis(1-chloropropane)	10	10 U
4-Methylphenol	10	10 U
N-Nitroso-di-n-propylamine	10	10 U
Hexachloroethane	10	10 U
Nitrobenzene	10	10 U
Isophorone	10	10 U
2-Nitrophenol	10	10 U
2,4-Dimethylphenol	10	10 U
bis(2-Chloroethoxy)methane	10	10 U
2,4-Dichlorophenol	10	10 U
1,2,4-Trichlorobenzene	10	10 U
Naphthalene	10	10 U
4-Chloroaniline	10	10 U
Hexachlorobutadiene	10	10 U
4-Chloro-3-methylphenol	10	10 U
2-Methylnaphthalene	10	10 U
Hexachlorocyclopentadiene	10	10 U
2,4,6-Trichlorophenol	10	10 U
2,4,5-Trichlorophenol	25	25 U
2-Chloronaphthalene	10	10 U
2-Nitroaniline	25	25 U
Dimethylphthalate	10	10 U
Acenaphthylene	10	10 U
2,6-Dinitrotoluene	10	10 U
3-Nitroaniline	25	25 U
Acenaphthene	10	10 U
2,4-Dinitrophenol	25	25 UJ
4-Nitrophenol	25	25 U
Dibenzofuran	10	10 U
2,4-Dinitrotoluene	10	10 U
Diethylphthalate	10	10 U
Fluorene	10	10 U
4-Chlorophenyl-phenylether	10	10 U
4-Nitroaniline	25	25 U
4,6-Dinitro-2-methylphenol	25	25 U
N-Nitrosodiphenylamine(1)	10	10 U
4-Bromophenyl-phenylether	10	10 U
Hexachlorobenzene	10	10 U
Pentachlorophenol	25	25 U
Phenanthrene	10	10 U
Anthracene	10	10 U
Carbazole	10	10 U
Di-n-butylphthalate	10	10 U
Fluoranthene	10	10 U
Pyrene	10	10 U
Butylbenzylphthalate	10	11
3,3'-Dichlorobenzidine	10	10 U
Benzo(a)anthracene	10	10 U
Chrysene	10	10 U
Bis(2-ethylhexyl)phthalate	10	5 J
Di-n-octylphthalate	10	10 UJ
Benzo(b)fluoranthene	10	10 U
Benzo(k)fluoranthene	10	10 UJ
Benzo(a)pyrene	10	10 U
Indeno(1,2,3-cd)pyrene	10	10 U
Dibenz(a,h)anthracene	10	10 U
Benzo(g,h,i)perylene	10	10 U
DILUTION FACTOR:		1.0
DATE SAMPLED:		12/06/98
DATE EXTRACTED:		12/11/98
DATE ANALYZED:		01/06/99

SITE: PUTNEY PAPER COMPANY SLUDGE DISPOSAL
CASE: 26713 SDG: APP02
LABORATORY: CEIMIC CORPORATION

TABLE 6
PESTICIDE/POLYCHLORINATED BIPHENYL SOIL ANALYSIS
µg/kg

SAMPLE NUMBER:		APP11	APP12	APP13	APP14	APP15	APP16
SAMPLE LOCATION:		SO-03	SO-04	SO-05	SO-06	SO-07	SO-08
LABORATORY NUMBER:		981006-10	981006-11	981006-12	981006-13	981006-14	981006-15
COMPOUND	CRQL						
alpha-BHC	1.7	2.2 U	2.2 U	2.2 U	2.1 U	2.1 U	2.0 U
beta-BHC	1.7	2.2 U	2.2 U	2.2 U	2.1 U	2.1 U	2.0 U
delta-BHC	1.7	2.2 U	2.2 U	2.2 U	2.1 U	2.1 U	2.0 U
gamma-BHC (Lindane)	1.7	2.2 U	2.2 U	2.2 U	2.1 U	2.1 U	2.0 U
Heptachlor	1.7	2.2 U	2.2 U	2.2 U	2.1 U	2.1 U	2.0 U
Aldrin	1.7	2.2 U	2.2 U	2.2 U	2.1 U	2.1 U	2.0 U
Heptachlor Epoxide	1.7	2.2 U	1.9 J	8.0	7.9	3.2	2.0 U
Endosulfan I	1.7	2.2 U	2.2 U	2.2 U	2.1 U	2.1 U	2.0 U
Dieldrin	3.3	4.3 U	4.4 U	4.3 U	4.1 U	4.0 U	3.9 U
4,4'-DDE	3.3	6.0	3.0 J	4.9 J	4.8 J	4.4 J	3.9 U
Endrin	3.3	4.3 U	4.4 U	4.3 U	4.1 U	4.0 U	3.9 U
Endosulfan II	3.3	4.3 U	4.4 U	4.3 U	4.1 U	4.0 U	3.9 U
4,4'-DDD	3.3	4.3 U	4.4 U	4.3 U	4.1 U	4.0 U	3.9 U
Endosulfan Sulfate	3.3	4.3 U	4.4 U	4.3 U	4.1 U	4.0 U	3.9 U
4,4'-DDT	3.3	8.8	4.4 U	4.3 U	4.1 U	4.8 J	3.9 U
Methoxychlor	17	R	R	R	R	R	R
Endrin Ketone	3.3	4.3 U	4.4 U	4.3 U	4.1 U	4.0 U	3.9 U
Endrin Aldehyde	3.3	4.3 U	4.4 U	4.3 U	4.1 U	4.0 U	3.9 U
alpha-Chlordane	1.7	2.2 U	2.2 U	2.2 U	2.1 U	2.1 U	2.0 U
gamma-Chlordane	1.7	2.2 U	1.8 J	4.4	4.3	2.8 J	2.0 U
Toxaphene	170	220 U	220 U	220 U	210 U	210 U	200 U
Aroclor-1016	33	43 U	44 U	43 U	41 U	40 U	39 U
Aroclor-1221	67	87 U	88 U	87 U	82 U	81 U	78 U
Aroclor-1232	33	43 U	44 U	43 U	41 U	40 U	39 U
Aroclor-1242	33	43 U	44 U	43 U	41 U	40 U	39 U
Aroclor-1248	33	43 U	44 U	43 U	41 U	40 U	39 U
Aroclor-1254	33	44	56	150	140	110	39 U
Aroclor-1260	33	43 U	44 U	43 U	41 U	40 U	39 U
DILUTION FACTOR:		1.00	1.00	1.00	1.00	1.00	1.00
DATE SAMPLED:		12/06/98	12/06/98	12/06/98	12/06/98	12/06/98	12/06/98
DATE EXTRACTED:		12/10/98	12/10/98	12/10/98	12/10/98	12/10/98	12/10/98
DATE ANALYZED:		01/05/99	01/05/99	01/05/99	01/05/99	01/05/99	01/05/99
% MOISTURE:		24	25	24	19	19	15

* - RESULT REPORTED FROM DILUTED ANALYSIS

NOTE: RESULTS ARE REPORTED ON A DRY WEIGHT BASIS.

SITE: PUTNEY PAPER COMPANY SLUDGE DISPOSAL
CASE: 26713 SDG: APP02
LABORATORY: CEIMIC CORPORATION

TABLE 5
PESTICIDE/POLYCHLORINATED BIPHENYL AQUEOUS ANALYSIS
µg/L

SAMPLE NUMBER:		APP17
SAMPLE LOCATION:		RB-03
LABORATORY NUMBER:		981006-16
COMPOUND	CRQL	
alpha-BHC	0.050	0.050 UJ
beta-BHC	0.050	0.050 UJ
delta-BHC	0.050	0.050 UJ
gamma-BHC (Lindane)	0.050	0.050 UJ
Heptachlor	0.050	0.050 UJ
Aldrin	0.050	0.050 UJ
Heptachlor Epoxide	0.050	0.050 UJ
Endosulfan I	0.050	0.050 UJ
Dieldrin	0.10	0.10 UJ
4,4'-DDE	0.10	0.10 UJ
Endrin	0.10	0.10 UJ
Endosulfan II	0.10	0.10 UJ
4,4'-DDD	0.10	0.10 UJ
Endosulfan Sulfate	0.10	0.10 UJ
4,4'-DDT	0.10	0.10 UJ
Methoxychlor	0.50	R
Endrin Ketone	0.10	0.10 UJ
Endrin Aldehyde	0.10	0.10 UJ
alpha-Chlordane	0.050	0.050 UJ
gamma-Chlordane	0.050	0.050 UJ
Toxaphene	5.0	5.0 UJ
Aroclor-1016	1.0	1.0 UJ
Aroclor-1221	2.0	2.0 UJ
Aroclor-1232	1.0	1.0 UJ
Aroclor-1242	1.0	1.0 UJ
Aroclor-1248	1.0	1.0 UJ
Aroclor-1254	1.0	1.0 UJ
Aroclor-1260	1.0	1.0 UJ
DILUTION FACTOR:		1.00
DATE SAMPLED:		12/06/98
DATE EXTRACTED:		12/09/98
DATE ANALYZED:		12/30/98
% MOISTURE:		

SITE: PUTNEY PAPER COMPANY SLUDGE DISPOSAL
CASE: 26713 SDG: MALX66
LABORATORY: CHEMTECH CONSULTING GROUP

TABLE 2
INORGANIC SOIL ANALYSES
mg/kg

SAMPLE NUMBER:			MALX66	MALX67	MALX68	MALX69	MALX70	MALX71	MALX72	
SAMPLE LOCATION:			SO-03	SO-04	SO-05	SO-06	SO-07	SO-08	SO-09	
LABORATORY NUMBER:			62098S	62099S	62102S	62103S	62104S	62105S	62106S	
PERCENT SOLIDS:			75.7	75.4	74.5	76.5	75.5	85.0	84.2	
INORGANIC ELEMENTS		INSTRUMENT DETECTION LIMITS (mg/kg)								CONTRACT DETECTION LIMITS (mg/kg)
ALUMINUM	P	2.5	10300	15100	13400	12700	12700	9610	10600	40
ANTIMONY	P	0.70	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.2 U	1.2 U	12
ARSENIC	P	0.72	2.4	3.6	3.5	2.8	4.4	2.8	4.1	2
BARIUM	P	0.84	55.2	68.9	50.0	52.0	51.8	28.4	34.5	40
BERYLLIUM	P	0.02	0.55	0.61	0.53	0.52	0.54	0.47	0.49	1
CADMIUM	P	0.06	0.25 U	0.27 U	0.26 U	0.26 U	0.26 U	0.24 U	0.24 U	1
CALCIUM	P	21.2	8080	2240	1110	1150	1330	1620	1610	1000
CHROMIUM	P	0.22	15.7	22.2	19.7	18.9	19.6	16.3	16.6	2
COBALT	P	0.34	7.4	10.3	8.0	8.1	9.2	7.8	8.5	10
COPPER	P	0.46	27.6	26.2	35.7	32.9	30.1	17.5	15.4	5
IRON	P	5.1	15900	21900	16500	16900	19000	14900	16500	20
LEAD	P	0.36	20.3	19.8	29.3	25.9	23.8	5.9	10.4	0.6
MAGNESIUM	P	25.4	3360	4960	3610	3690	3770	3900	4010	1000
MANGANESE	P	0.06	428	381	239	281	387	342	424	3
MERCURY	CV	0.05	0.13 U	0.13 U	0.13 U	0.12 U	0.13 U	0.12 U	0.19	0.1
NICKEL	P	0.42	16.3	24.3	18.5	18.2	21.2	18.9	19.7	8
POTASSIUM	P	44.0	629	1160	840	823 J	799	937	936	1000
SELENIUM	P	0.94	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.2 U	1.2 U	1
SILVER	P	0.42	0.51 U	0.53 U	0.52 U	0.51 U	0.52 U	0.47 U	0.48 U	2
SODIUM	P	121	175	164	142	136	133	126	147	1000
THALLIUM	P	1.3	1.8	0.53 U	0.52 U	0.51 U	0.52 U	0.47 U	0.48 U	2
VANADIUM	P	0.32	19.8	30.9	28.5	27.2	26.7	19.1	19.9	10
ZINC	P	0.62	141	133	106	114	136	41.0	53.8	4
CYANIDE	CA	0.50	0.26 U	0.27 U	0.93	0.60	0.26 U	0.23 U	0.23 U	2.5

ANALYTICAL METHOD
F - FURNACE
P - ICP/FLAME AA
CV - COLD VAPOR
AS - SEMI AUTOMATED SPECTROPHOTOMETRIC
CA - MIDI-DISTILLATION SPECTROPHOTOMETRIC

NOTE: J = QUANTITATION IS ESTIMATED DUE TO LIMITATIONS IDENTIFIED IN THE QUALITY CONTROL REVIEW (DATA REVIEW).
U = VALUE IS NON-DETECTED.
UJ = VALUE IS NON-DETECTED AND DETECTION LIMIT IS ESTIMATED.
R = VALUE IS REJECTED.
NA = NOT ANALYZED

NOTE: RESULTS ARE REPORTED ON A DRY WEIGHT BASIS

SITE: PUTNEY PAPER COMPANY SLUDGE DISPOSAL
CASE: 28713 SDG: MALX66
LABORATORY: CHEMTECH CONSULTING GROUP

TABLE 1
INORGANIC WATER ANALYSIS
ug/L

SAMPLE NUMBER:	MALX73
SAMPLE LOCATION:	RB-03
LABORATORY NUMBER:	62107S

INORGANIC ELEMENTS	METHOD	INSTRUMENT DETECTION LIMITS (ug/L)	
ALUMINUM	P	7.0	7.0 U
ANTIMONY	P	5.0	5.0 U
ARSENIC	P	4.0	4.0 U
BARIUM	P	1.0	1.0 U
BERYLLIUM	P	1.0	1.3 UJ
CADMIUM	P	1.0	1.0 U
CALCIUM	P	11.0	11.0 U
CHROMIUM	P	2.0	2.0 U
COBALT	P	2.0	2.0 U
COPPER	P	1.0	1.0 U
IRON	P	27.0	27.0 U
LEAD	P	2.0	2.0
MAGNESIUM	P	13.0	13.0 U
MANGANESE	P	1.0	1.0 U
MERCURY	CV	0.20	0.20 U
NICKEL	P	1.0	1.0 U
POTASSIUM	P	60.0	60.0 U
SELENIUM	P	5.0	5.0 U
SILVER	P	2.0	2.0 U
SODIUM	P	55.0	55.0 U
THALLIUM	P	2.0	2.0 U
VANADIUM	P	2.0	2.3 UJ
ZINC	P	2.0	2.0 U
CYANIDE	CA	4.0	4.0 U

ANALYTICAL METHOD
F - FURNACE
P - ICP/FLAME AA
CV - COLD VAPOR
AS - SEMI AUTOMATED SPECTROPHOTOMETRIC
CA - MIDI-DISTILLATION SPECTROPHOTOMETRIC

NOTE:
J - QUANTITATION IS ESTIMATED DUE TO LIMITATIONS IDENTIFIED IN THE QUALITY CONTROL REVIEW (DATA REVIEW).
U - VALUE IS NON-DETECTED AND DETECTION LIMIT IS RAISED.
UJ VALUE IS NON-DETECTED AND DETECTION LIMIT IS ESTIMATED.
R - VALUE IS REJECTED.

SAMPLE NUMBER:	DAF12H #		DAF13H #		DAF14H #	
STATION LOCATION:	SO-05		SO-06		SO-08	
MATRIX:	SOIL		SOIL		SOIL	
TCDD/TCDF CONC.:	pg/g	DL/EMPC*	pg/g	DL/EMPC*	pg/g	DL/EMPC*
2,3,7,8-TCDD	6.14 J		4.50		UJ	0.266
1,2,3,7,8-PeCDD		0.612 *		0.706 *	UJ	0.135
1,2,3,4,7,8-HxCDD	UJ	1.24	UJ	1.65	UJ	0.238
1,2,3,6,7,8-HxCDD	22.8 J		24.9		UJ	0.971
1,2,3,7,8,9-HxCDD	8.87 J		7.97		UJ	0.554
1,2,3,4,6,7,8-HpCDD	404 J		348 J		12.7 J	
OCDD	3740 EJ		3430 EJ		131 J	
2,3,7,8-TCDF	62.1 JEB		41.5 JEB			1.21 *
1,2,3,7,8-PeCDF	1.23 JEB			1.20 *		0.310 *
2,3,4,7,8-PeCDF		2.38 *	2.61 EB		0.528 EB	
1,2,3,4,7,8-HxCDF	9.08 J		8.41		UJ	1.13
1,2,3,6,7,8-HxCDF	2.90 J		UJ	1.38	UJ	0.536
1,2,3,7,8,9-HxCDF		0.598 *	UJ	0.182	UJ	0.163
2,3,4,6,7,8-HxCDF	UJ	1.49	UJ	0.722	UJ	0.487
1,2,3,4,6,7,8-HpCDF	57.4 JEB		49.2 JEB		2.74 JEB	
1,2,3,4,7,8,9-HpCDF	6.47 J		5.42		UJ	0.536
OCDF	191 J		172 J		UJ	8.06
TOTAL TCDD	6.14 JEB		7.26 JEB		0.0070 JEB	
TOTAL PeCDD	3.15 J		3.17 J		UJ	0.017
TOTAL HxCDD	137 J		121 J		UJ	1.21
TOTAL HpCDD	744 JEB		600 JEB		20.7 JEB	
TOTAL TCDF	85.3 JEB		78.2 JEB		1.21 JEB	
TOTAL PeCDF	11.8 JEB		18.6 JEB		1.82 JEB	
TOTAL HxCDF	66.8 J		45.0 J		UJ	3.11
TOTAL HpCDF	242 J		210 J		8.17 J	
TOXICITY EQUIVALENCY:	26.942 J		22.124 J		0.686 J	
% SOLIDS:	74		78		84	
DILUTION FACTOR:	1.0		1.0		1.0	
DATE SAMPLED:	12/06/98		12/06/98		12/06/98	
DATE OF RECEIPT:	12/08/98		12/08/98		12/08/98	
SAMPLE EXTRACTION DATE:	12/11/98		12/09/98		12/09/98	
ANALYSIS DATE:	12/14/98		01/04/99		01/04/99	
LAB SAMPLE ID:	115589		115590		115591	

* = These values are EMPCs (Estimated Maximum Possible Concentration). EMPC values are not qualified with a "J". Values without an "*" are the Detection Limits.
# = These values are reported on a dry weight basis.
E = Exceeded instrument calibration range.
EB = Equipment Blank contamination.

ATTACHMENT B

BLOOD FARM DUMP

DRINKING WATER SAMPLE ANALYTICAL RESULTS START

Samples Collected 6 December 1998

SITE: PUTNEY PAPER COMPANY SLUDGE DISPOSAL SITE
CASE: 0213F SDG: DAF85G
LABORATORY: EAS LABORATORIES

TABLE 1
VOA Modified Method 524.2 Water Analyses
µg/L

SAMPLE NUMBER:		DAF85G	DAF86G	DAF87G	DAF88G	DAF89G	DAF90G
SAMPLE LOCATION:		DW-01	DW-02	DW-03	DW-04	DW-05	DW-06
LABORATORY NUMBER:		9812451	9812452	9812453	9812454	9812455	9812456
COMPOUND	CRQL						
Dichlorodifluoromethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane	1.0	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ
Vinyl Chloride	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	1.0	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	5.0	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,1-Dichloroethene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene Chloride	1.0	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon Disulfide	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone	5.0	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
cis-1,2-Dichloroethene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2,2-Dichloropropane	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromochloromethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrahydrofuran	5.0	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,1,1-Trichloroethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloropropene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon Tetrachloride	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromomethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
4-Methyl-2-Pentanone	5.0	5.0 UJ	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
cis-1,3-Dichloropropene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Hexanone	5.0	5.0 UJ	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,3-Dichloropropane	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromoethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,1,2-Tetrachloroethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
m/p-Xylene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Styrene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
o-Xylene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Isopropylbenzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,3-Trichloropropane	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromobenzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
n-Propylbenzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Chlorotoluene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
4-Chlorotoluene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3,5-Trimethylbenzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
tert-Butylbenzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trimethylbenzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
sec-Butylbenzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
p-Isopropyltoluene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
n-Butylbenzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1-2-Dibromo-3-Chloropropane	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	1.0	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Naphthalene	1.0	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Hexachlorobutadiene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,3-Trichlorobenzene	1.0	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0
DATE SAMPLED:		12/06/98	12/06/98	12/06/98	12/06/98	12/06/98	12/06/98
DATE ANALYZED:		12/14/98	12/14/98	12/14/98	12/14/98	12/14/98	12/14/98

SITE: PUTNEY PAPER COMPANY SLUDGE DISPOSAL SITE
CASE: 0213F SDG: DAF35G
LABORATORY: EAS LABORATORIES

TABLE 1
VOA Modified Method 524.2 Water Analyses
µg/L

SAMPLE NUMBER:		DAF08H	DAF09H	DAF10H	DAF15H
SAMPLE LOCATION:		DW-07	DW-08	TB-02	DW-09
LABORATORY NUMBER:		9812457	9812458	9812460	9812459
COMPOUND	CRQL				
Dichlorodifluoromethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane	1.0	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ
Vinyl Chloride	1.0	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	5.0	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ
1,1-Dichloroethene	1.0	1.0 U	1.0 U	1.0 U	1.0 U
Methylene Chloride	1.0	1.0 U	1.0 U	1.0 U	1.0 U
Carbon Disulfide	1.0	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	1.0	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone	5.0	5.0 U	5.0 U	5.0 U	5.0 U
cis-1,2-Dichloroethene	1.0	1.0 U	1.0 U	1.0 U	1.0 U
2,2-Dichloropropane	1.0	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform	1.0	1.0 U	1.0 U	1.0 U	1.0 U
Bromochloromethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U
Tetrahydrofuran	5.0	5.0 U	5.0 U	5.0 U	5.0 U
1,1,1-Trichloroethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloropropene	1.0	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U
Carbon Tetrachloride	1.0	1.0 U	1.0 U	1.0 U	1.0 U
Benzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	1.0	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	1.0	1.0 U	1.0 U	1.0 U	1.0 U
Dibromomethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U
4-Methyl-2-Pentanone	5.0	5.0 U	5.0 U	5.0 U	5.0 U
cis-1,3-Dichloropropene	1.0	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	1.0	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	1.0	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U
2-Hexanone	5.0	5.0 U	5.0 U	5.0 U	5.0 U
1,3-Dichloropropane	1.0	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	1.0	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromoethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U
1,1,1,2-Tetrachloroethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U
m/p-Xylene	1.0	1.0 U	1.0 U	1.0 U	1.0 U
Styrene	1.0	1.0 U	1.0 U	1.0 U	1.0 U
o-Xylene	1.0	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	1.0	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U
Isopropylbenzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U
1,2,3-Trichloropropane	1.0	1.0 U	1.0 U	1.0 U	1.0 U
Bromobenzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U
n-Propylbenzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U
2-Chlorotoluene	1.0	1.0 U	1.0 U	1.0 U	1.0 U
4-Chlorotoluene	1.0	1.0 U	1.0 U	1.0 U	1.0 U
1,3,5-Trimethylbenzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U
tert-Butylbenzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trimethylbenzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U
sec-Butylbenzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U
p-Isopropyltoluene	1.0	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U
n-Butylbenzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U
1-2-Dibromo-3-Chloropropane	1.0	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U
Naphthalene	1.0	1.0 U	1.0 U	1.0 U	1.0 U
Hexachlorobutadiene	1.0	1.0 U	1.0 U	1.0 U	1.0 U
1,2,3-Trichlorobenzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U
DILUTION FACTOR:		1.0	1.0	1.0	1.0
DATE SAMPLED:		12/06/98	12/06/98	12/06/98	12/06/98
DATE ANALYZED:		12/15/98	12/15/98	12/14/98	12/15/98

SITE: PUTNEY PAPER COMPANY SLUDGE DISPOSAL
CASE: 26713 SDG: APP02
LABORATORY: CEIMIC CORPORATION

TABLE 3
SEMIVOLATILE AQUEOUS ANALYSIS
µg/L

SAMPLE NUMBER:		APP02	APP03	APP04
SAMPLE LOCATION:		DW-01	DW-02	DW-03
LABORATORY NUMBER:		981006-01	981006-02	981006-03
COMPOUND	CRQL			
Phenol	10	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U
2,2'-Oxybis(1-chloropropane)	10	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U
Hexachlorobutadiene	10	10 U	10 U	10 U
4-Chloro-3-methylphenol	10	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U
2,4,5-Trichlorophenol	25	25 U	25 U	25 U
2-Chloronaphthalene	10	10 U	10 U	10 U
2-Nitroaniline	25	25 U	25 U	25 U
Dimethylphthalate	10	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U
3-Nitroaniline	25	25 U	25 U	25 U
Acenaphthene	10	10 U	10 U	10 U
2,4-Dinitrophenol	25	25 UJ	25 UJ	25 UJ
4-Nitrophenol	25	25 U	25 U	25 U
Dibenzofuran	10	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U
4-Nitroaniline	25	25 U	25 U	25 U
4,6-Dinitro-2-methylphenol	25	25 U	25 U	25 U
N-Nitrosodiphenylamine(1)	10	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U
Pentachlorophenol	25	25 U	25 U	25 U
Phenanthrene	10	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U
Carbazole	10	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U
3,3'-Dichlorobenzidine	10	10 U	10 U	10 U
Benzo(a)anthracene	10	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U
Bis(2-ethylhexyl)phthalate	10	10 U	10 U	10 U
Di-n-octylphthalate	10	10 UJ	10 UJ	10 UJ
Benzo(b)fluoranthene	10	10 U	10 U	10 U
Benzo(k)fluoranthene	10	10 UJ	10 UJ	10 UJ
Benzo(a)pyrene	10	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U
Benzo(g,h,i)perylene	10	10 U	10 U	10 U
DILUTION FACTOR:		1.0	1.0	1.0
DATE SAMPLED:		12/06/98	12/06/98	12/06/98
DATE EXTRACTED:		12/11/98	12/11/98	12/11/98
DATE ANALYZED:		01/06/99	01/06/99	01/06/99

SITE: PUTNEY PAPER COMPANY SLUDGE DISPOSAL
CASE: 26713 SDG: APP02
LABORATORY: CEIMIC CORPORATION

TABLE 3
SEMIVOLATILE AQUEOUS ANALYSIS
µg/L

SAMPLE NUMBER:		APP05	APP06	APP07	APP08	APP09	APP10
SAMPLE LOCATION:		DW-04	DW-05	DW-06	DW-07	DW-08	DW-09
LABORATORY NUMBER:		981006-04	981006-05	981006-06	981006-07	981006-08	981006-09
COMPOUND	CRQL						
Phenol	10	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U
2,2'-Oxybis(1-chloropropane)	10	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	25	25 U	25 U	25 U	25 U	25 U	25 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	25	25 U	25 U	25 U	25 U	25 U	25 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U
3-Nitroaniline	25	25 U	25 U	25 U	25 U	25 U	25 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	25	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ
4-Nitrophenol	25	25 U	25 U	25 U	25 U	25 U	25 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	25	25 U	25 U	25 U	25 U	25 U	25 U
4,6-Dinitro-2-methylphenol	25	25 U	25 U	25 U	25 U	25 U	25 U
N-Nitrosodiphenylamine(1)	10	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	25	25 U	25 U	25 U	25 U	25 U	25 U
Phenanthrene	10	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U
Carbazole	10	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	10	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U	10 U	10 U
Bis(2-ethylhexyl)phthalate	10	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-octylphthalate	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Benzo(b)fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Benzo(a)pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	10	10 U	10 U	10 U	10 U	10 U	10 U
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0
DATE SAMPLED:		12/06/98	12/06/98	12/06/98	12/06/98	12/06/98	12/06/98
DATE EXTRACTED:		12/11/98	12/11/98	12/11/98	12/11/98	12/11/98	12/11/98
DATE ANALYZED:		01/06/99	01/06/99	01/06/99	01/06/99	01/06/99	01/06/99

SITE: PUTNEY PAPER COMPANY SLUDGE DISPOSAL
CASE: 26713 SDG: APP02
LABORATORY: CEIMIC CORPORATION

TABLE 5
PESTICIDE/POLYCHLORINATED BIPHENYL AQUEOUS ANALYSIS
µg/L

SAMPLE NUMBER:		APP02	APP03	APP04
SAMPLE LOCATION:		DW-01	DW-02	DW-03
LABORATORY NUMBER:		981006-01	981006-02	981006-03
COMPOUND	CRQL			
alpha-BHC	0.050	0.050 U	0.050 U	0.050 U
beta-BHC	0.050	0.050 U	0.050 U	0.050 U
delta-BHC	0.050	0.050 U	0.050 U	0.050 U
gamma-BHC (Lindane)	0.050	0.050 U	0.050 U	0.050 U
Heptachlor	0.050	0.050 U	0.050 U	0.050 U
Aldrin	0.050	0.050 U	0.050 U	0.050 U
Heptachlor Epoxide	0.050	0.050 U	0.050 U	0.050 U
Endosulfan I	0.050	0.050 U	0.050 U	0.050 U
Dieldrin	0.10	0.10 U	0.10 U	0.10 U
4,4'-DDE	0.10	0.10 U	0.10 U	0.10 U
Endrin	0.10	0.10 U	0.10 U	0.10 U
Endosulfan II	0.10	0.10 U	0.10 U	0.10 U
4,4'-DDD	0.10	0.10 U	0.10 U	0.10 U
Endosulfan Sulfate	0.10	0.10 U	0.10 U	0.10 U
4,4'-DDT	0.10	0.10 U	0.10 U	0.10 U
Methoxychlor	0.50	R	R	R
Endrin Ketone	0.10	0.10 U	0.10 U	0.10 U
Endrin Aldehyde	0.10	0.10 U	0.10 U	0.10 U
alpha-Chlordane	0.050	0.050 U	0.050 U	0.050 U
gamma-Chlordane	0.050	0.050 U	0.050 U	0.050 U
Toxaphene	5.0	5.0 U	5.0 U	5.0 U
Aroclor-1016	1.0	1.0 U	1.0 U	1.0 U
Aroclor-1221	2.0	2.0 U	2.0 U	2.0 U
Aroclor-1232	1.0	1.0 U	1.0 U	1.0 U
Aroclor-1242	1.0	1.0 U	1.0 U	1.0 U
Aroclor-1248	1.0	1.0 U	1.0 U	1.0 U
Aroclor-1254	1.0	1.0 U	1.0 U	1.0 U
Aroclor-1260	1.0	1.0 U	1.0 U	1.0 U
DILUTION FACTOR:		1.00	1.00	1.00
DATE SAMPLED:		12/06/98	12/06/98	12/06/98
DATE EXTRACTED:		12/09/98	12/09/98	12/09/98
DATE ANALYZED:		12/30/98	12/30/98	12/30/98
% MOISTURE:				

SITE: PUTNEY PAPER COMPANY SLUDGE DISPOSAL
CASE: 26713 SDG: APP02
LABORATORY: CEIMIC CORPORATION

TABLE 5
PESTICIDE/POLYCHLORINATED BIPHENYL AQUEOUS ANALYSIS
µg/L

SAMPLE NUMBER:		APP05	APP06	APP07	APP08	APP09	APP10
SAMPLE LOCATION:		DW-04	DW-05	DW-06	DW-07	DW-08	DW-09
LABORATORY NUMBER:		981006-04	981006-05	981006-06	981006-07	981006-08	981006-09
COMPOUND	CRQL						
alpha-BHC	0.050	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 UJ
beta-BHC	0.050	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 UJ
delta-BHC	0.050	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 UJ
gamma-BHC (Lindane)	0.050	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 UJ
Heptachlor	0.050	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 UJ
Aldrin	0.050	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 UJ
Heptachlor Epoxide	0.050	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 UJ
Endosulfan I	0.050	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 UJ
Dieldrin	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 UJ
4,4'-DDE	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 UJ
Endrin	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 UJ
Endosulfan II	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 UJ
4,4'-DDD	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 UJ
Endosulfan Sulfate	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 UJ
4,4'-DDT	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 UJ
Methoxychlor	0.50	R	R	R	R	R	R
Endrin Ketone	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 UJ
Endrin Aldehyde	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 UJ
alpha-Chlordane	0.050	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 UJ
gamma-Chlordane	0.050	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 UJ
Toxaphene	5.0	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 UJ
Aroclor-1016	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ
Aroclor-1221	2.0	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 UJ
Aroclor-1232	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ
Aroclor-1242	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ
Aroclor-1248	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ
Aroclor-1254	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ
Aroclor-1260	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ
DILUTION FACTOR:		1.00	1.00	1.00	1.00	1.00	1.00
DATE SAMPLED:		12/06/98	12/06/98	12/06/98	12/06/98	12/06/98	12/06/98
DATE EXTRACTED:		12/09/98	12/09/98	12/09/98	12/09/98	12/09/98	12/09/98
DATE ANALYZED:		12/30/98	12/30/98	12/30/98	12/30/98	12/30/98	12/30/98
% MOISTURE:							

SITE: PUTNEY PAPER COMPANY SLUDGE DISPOSAL
CASE: 26713 SDG: MALX57
LABORATORY: CHEMTECH CONSULTING GROUP

TABLE 1
INORGANIC WATER ANALYSIS
ug/L

SAMPLE NUMBER:	MALX57	MALX58	MALX59	MALX60
SAMPLE LOCATION:	DW-01	DW-02	DW-03	DW-04
LABORATORY NUMBER:	62110S	62111S	62112S	62113S

INORGANIC ELEMENTS	METHOD	INSTRUMENT DETECTION LIMITS (ug/L)					CONTRACT DETECTION LIMITS (ug/L)
ALUMINUM	P	7.0	37.7 UJ	29.0 UJ	290	25.8 UJ	200
ANTIMONY	P	5.0	5.0 U	5.0 U	5.0 U	5.0 U	60
ARSENIC	P	4.0	4.0 U	4.0 U	15.7	4.0 U	10
BARIUM	P	1.0	42.2	45.7	11.4	74.0	200
BERYLLIUM	P	1.0	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	5
CADMIUM	P	1.0	1.0 U	1.0 U	1.0 U	1.0 U	5
CALCIUM	P	11	11300	12100	7730	19000	5000
CHROMIUM	P	2.0	2.0 U	2.0 U	30.3	2.0 U	10
COBALT	P	2.0	2.0 U	2.0 U	2.0 U	2.0 U	50
COPPER	P	1.0	28.9	15.7	548	14.3	25
IRON	P	27	2460	2660	37600	1710	100
LEAD	P	2.0	2.0 U	2.0 U	180	2.0 U	3
MAGNESIUM	P	13	3120	3370	1130	3630	5000
MANGANESE	P	1.0	398	434	39.1	157	15
MERCURY	CV	0.20	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	0.2
NICKEL	P	1.0	1.1 U	1.1 U	1.0 U	1.0 U	40
POTASSIUM	P	60	845	917	931	1140	5000
SELENIUM	P	5.0	5.0 U	5.0 U	5.0 U	5.0 U	5
SILVER	P	2.0	2.0 U	2.0 U	2.0 U	2.0 U	10
SODIUM	P	55	2360	2500	25100	17300	5000
THALLIUM	P	2.0	2.0 UJ	5.3 UJ	3.4 UJ	5.5 UJ	10
VANADIUM	P	2.0	2.0 U	2.0 U	7.8	2.0 U	50
ZINC	P	2.0	55.5	51.1	61.0	51.1	20
CYANIDE	CA	4.0	4.0 U	4.0 U	4.0 U	4.0 U	10

ANALYTICAL METHOD
F - FURNACE
P - ICP/FLAME AA
CV - COLD VAPOR
AS - SEMI AUTOMATED SPECTROPHOTOMETRIC
CA - MIDI-DISTILLATION SPECTROPHOTOMETRIC

NOTE:
J - QUANTITATION IS ESTIMATED DUE TO LIMITATIONS IDENTIFIED IN THE QUALITY CONTROL REVIEW (DATA REVIEW).
U - VALUE IS NON-DETECTED AND DETECTION LIMIT IS RAISED.
UJ VALUE IS NON-DETECTED AND DETECTION LIMIT IS ESTIMATED.
R - VALUE IS REJECTED.

SITE: PUTNEY PAPER COMPANY SLUDGE DISPOSAL
CASE: 26713 SDG: MALX57
LABORATORY: CHEMTECH CONSULTING GROUP

TABLE 1
INORGANIC WATER ANALYSIS
ug/L

SAMPLE NUMBER:			MALX61	MALX62	MALX63	MALX64	MALX65	
SAMPLE LOCATION:			DW-05	DW-06	DW-07	DW-08	DW-09	
LABORATORY NUMBER:			62114S	62115S	62116S	62117S	62118S	
INORGANIC ELEMENTS	METHOD	INSTRUMENT DETECTION LIMITS (ug/L)						CONTRACT DETECTION LIMITS (ug/L)
ALUMINUM	P	7.0	25.5 UJ	25.9 UJ	28.8 UJ	34.0 UJ	29.2 UJ	200
ANTIMONY	P	5.0	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	60
ARSENIC	P	4.0	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	10
BARIUM	P	1.0	33.4	44.1	43.7	94.1	35.2	200
BERYLLIUM	P	1.0	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	5
CADMIUM	P	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5
CALCIUM	P	11	37200	26300	23800	56000	23400	5000
CHROMIUM	P	2.0	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	10
COBALT	P	2.0	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	50
COPPER	P	1.0	51.7	12.0	23.1	16.9	10.9	25
IRON	P	27	379	71.7	54.3	70.8	87.8	100
LEAD	P	2.0	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	3
MAGNESIUM	P	13	6410	2150	3890	5150	2310	5000
MANGANESE	P	1.0	250	8.9	2.5	10.4	77.9	15
MERCURY	CV	0.20	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	0.2
NICKEL	P	1.0	1.1 J	1.0 U	1.0 U	1.0 U	1.0 U	40
POTASSIUM	P	60	1730	790	975	1720	500	5000
SELENIUM	P	5.0	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5
SILVER	P	2.0	2.0 UJ	2.0 UJ	2.0 U	2.0 U	2.0 U	10
SODIUM	P	55	12500	13800	2970	25400	13600	5000
THALLIUM	P	2.0	3.4 UJ	2.4 UJ	2.2 UJ	2.0 U	3.2 UJ	10
VANADIUM	P	2.0	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	50
ZINC	P	2.0	43.4	44.7	43.1	50.1	41.4	20
CYANIDE	CA	4.0	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	10

ANALYTICAL METHOD
F - FURNACE
P - ICP/FLAME AA
CV - COLD VAPOR
AS - SEMI AUTOMATED SPECTROPHOTOMETRIC
CA - MIDI-DISTILLATION SPECTROPHOTOMETRIC

NOTE:
J - QUANTITATION IS ESTIMATED DUE TO LIMITATIONS IDENTIFIED IN THE QUALITY CONTROL REVIEW (DATA REVIEW).
U - VALUE IS NON-DETECTED AND DETECTION LIMIT IS RAISED.
UJ VALUE IS NON-DETECTED AND DETECTION LIMIT IS ESTIMATED.
R - VALUE IS REJECTED.

Dioxin/Furan Analysis

SITE: PUTNEY PAPER CO. - PUTNEY VT
DAS NO.: 0215F SDG NO.: DAF85G

SAMPLE NUMBER:	DAF85G		DAF86G		DAF87G		DAF89G		DAF09H		DAF17H	
STATION LOCATION:	DW.01		DW.02		DW.03		DW.05		DW.08		RB.03	
MATRIX:	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
TCDD/TCDF CONC.:	pg/L	DL/EMPC*	pg/L	DL/EMPC*	pg/L	DL/EMPC*	pg/L	DL/EMPC*	pg/L	DL/EMPC*	pg/L	DL/EMPC*
2,3,7,8-TCDD	UJ	1.20	UJ	0.940	UJ	1.14	UJ	0.600	UJ	0.480	UJ	0.580
1,2,3,7,8-PeCDD	UJ	0.320	UJ	0.700	UJ	1.20	UJ	0.380	UJ	0.300		0.920*
1,2,3,4,7,8-HxCDD	UJ	0.160	UJ	1.24	UJ	0.480	UJ	0.120	UJ	0.440		2.14*
1,2,3,6,7,8-HxCDD	UJ	2.24	UJ	2.92	UJ	4.04	UJ	1.10	UJ	1.10	UJ	2.06
1,2,3,7,8,9-HxCDD	UJ	1.98	UJ	0.840	UJ	0.500	UJ	1.36	UJ	0.620	UJ	2.42
1,2,3,4,6,7,8-HpCDD	UJ	8.16	UJ	2.82	UJ	3.54	UJ	7.54	UJ	5.64	UJ	6.40
OCDD	UJ	55.00	UJ	44.90	UJ	50.70	UJ	60.00	UJ	50.50	UJ	44.00
2,3,7,8-TCDF	UJ	0.840	UJ	0.420	UJ	0.360	UJ	1.78	UJ	1.26	UJ	2.20
1,2,3,7,8-PeCDF	UJ	0.460	UJ	0.660	UJ	0.140	UJ	1.10	UJ	0.980	UJ	1.18
2,3,4,7,8-PeCDF	UJ	0.840	UJ	0.500	UJ	0.060	UJ	0.600	UJ	0.780		2.84*
1,2,3,4,7,8-HxCDF	UJ	2.82	UJ	3.52	UJ	2.18	UJ	1.28	UJ	2.18	UJ	1.84
1,2,3,6,7,8-HxCDF	UJ	1.40	UJ	1.40	UJ	1.70	UJ	0.400	UJ	0.860	UJ	1.66
1,2,3,7,8,9-HxCDF	UJ	1.24	UJ	0.420	UJ	0.320	UJ	0.400	UJ	0.180	UJ	1.04
2,3,4,6,7,8-HxCDF	UJ	1.52	UJ	0.480	UJ	1.66	UJ	1.26	UJ	0.560	UJ	2.68
1,2,3,4,6,7,8-HpCDF	UJ	6.12	UJ	6.24	UJ	3.16	UJ	6.72	UJ	6.56	UJ	7.02
1,2,3,4,7,8,9-HpCDF	UJ	3.88	UJ	0.460	UJ	2.74	UJ	0.940	UJ	0.020	UJ	4.32
OCDF	UJ	21.60	UJ	12.80	UJ	11.70	UJ	8.28	UJ	6.38	UJ	12.70
Total Tetra-Dioxins	UJ	0.049	UJ	0.071	UJ	0.114	UJ	0.600	UJ	0.220	1.54 J	
Total Penta-Dioxins	UJ	0.059	UJ	0.055	UJ	0.055	UJ	0.040	UJ	0.067	0.128 J	
Total Hexa-Dioxins	UJ	0.051	UJ	0.107	UJ	0.118	UJ	9.30	UJ	2.64	0.059 J	
Total Hepta-Dioxins	UJ	8.16	UJ	0.178	UJ	0.092	UJ	5.18	UJ	5.64	3.74 J	
Total Tetra-Furans	UJ	4.12	UJ	0.740	UJ	0.041	UJ	0.860	UJ	3.18	2.20 J	
Total Penta-Furans	UJ	1.26	UJ	0.066	UJ	0.057	UJ	0.600	UJ	0.280	0.22 J	
Total Hexa-Furans	UJ	0.920	UJ	0.028	UJ	0.036	UJ	1.28	UJ	5.66	UJ	0.040
Total Hepta-Furans	UJ	10.00	UJ	6.24	UJ	5.08	UJ	4.68	UJ	0.102	UJ	4.32
TOXICITY EQUIVALENCY:	0.0UJ		0.0UJ		0.0UJ		0.0UJ		0.0UJ		2.09J	
% SOLIDS:	NA		NA		NA		NA		NA		NA	
DILUTION FACTOR:	1.0		1.0		1.0		1.0		1.0		1.0	
DATE SAMPLED:	12/06/98		12/06/98		12/06/98		12/06/98		12/06/98		12/06/98	
DATE OF RECEIPT:	12/08/98		12/08/98		12/08/98		12/08/98		12/08/98		12/08/98	
SAMPLE EXTRACTION DATE:	12/10/98		12/10/98		12/10/98		12/10/98		12/10/98		12/10/98	
ANALYSIS DATE:	12/19/98		12/19/98		12/19/98		01/02/99		01/02/99		01/04/99	
GC/MS I.D.:	115580		115581		115582		115583		115584		115588	

* = These values are EMPCs (Estimated Maximum Possible Concentration); Values without an "*" are the Detection Limits.
# = These values are reported on a dry weight basis

ATTACHMENT C

BLOOD FARM DUMP

SURFACE WATER AND SEDIMENT SAMPLE ANALYTICAL RESULTS START

Samples Collected 7 December 1998

SITE: PUTNEY PAPER CO. SLUDGE DISPOSAL
CASE: 26713 SDG: ANY00
LABORATORY: CEIMIC CORPORATION

TABLE 1
VOLATILE AQUEOUS ANALYSIS
ug/L

SAMPLE NUMBER:		ANY10	ANY11	ANY12	ANY13	APP17	APP18
SAMPLE LOCATION:		SW-05	SW-06	SW-07	SW-08	RB-03	TB-01
LABORATORY NUMBER:		981011-18	981011-19	981011-20	981011-21	981006-16	981006-17
COMPOUND	CRQL						
Chloromethane	10	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethan	10	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 UJ	10 UJ	10 U	10 U
Methylene Chloride	10	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Carbon Disulfide	10	10 UJ	10 UJ	10 U	10 U	10 U	10 U
1,1-Dichloroethene	10	10 UJ	10 UJ	10 U	10 U	10 U	10 U
1,1-Dichloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethene (Total)	10	10 U	10 U	10 U	10 U	10 U	10 U
Chloroform	10	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U
2-Butanone	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
1,1,1-Trichloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U
Carbon Tetrachloride	10	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	10	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloropropane	10	10 U	10 U	10 U	10 U	10 U	10 U
cis-1,3-Dichloropropene	10	10 U	10 U	10 U	10 U	10 U	10 U
Trichloroethene	10	10 U	10 U	10 U	10 U	10 U	10 U
Dibromochloromethane	10	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-Trichloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	10	10 U	10 U	10 U	10 U	10 U	10 U
trans-1,3-Dichloropropene	10	10 U	10 U	10 U	10 U	10 U	10 U
Bromoform	10	10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone	10	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	10	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U
Toluene	10	10 U	10 U	10 U	10 U	10 U	10 U
Chlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U
Ethylbenzene	10	10 U	10 U	10 U	10 U	10 U	10 U
Styrene	10	10 U	10 U	10 U	10 U	10 U	10 U
Xylene (total)	10	10 U	10 U	10 U	10 U	10 U	10 U
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0
DATE SAMPLED:		12/07/98	12/07/98	12/07/98	12/07/98	12/06/98	12/06/98
DATE ANALYZED:		12/11/98	12/11/98	12/13/98	12/13/98	12/10/98	12/10/98

SITE: PUTNEY PAPER COMPANY SLUDGE DISPOSAL
CASE: 26713 SDG: ANY00, APP02
LABORATORY: CEIMIC CORPORATION

TABLE 3
SEMIVOLATILE AQUEOUS ANALYSIS
µg/L

SAMPLE NUMBER:		ANY10	ANY11	ANY12	ANY13	APP17
SAMPLE LOCATION:		SW-05	SW-06	SW-07	SW-08	RB-03
LABORATORY NUMBER:		981011-18	981011-19	981011-20	981011-21	981006-16
COMPOUND	CRQL					
Phenol	10	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U
2 Methylphenol	10	10 UJ	10 U	10 U	10 U	10 U
2,2'-Oxybis(1-chloropropane)	10	10 UJ	10 UJ	10 UJ	10 UJ	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 UJ	10 UJ	10 UJ	10 UJ	10 U
Hexachlorobutadiene	10	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol	10	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 UJ	10 UJ	10 UJ	10 UJ	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	25	25 U	25 U	25 U	25 U	25 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	25	25 U	25 U	25 U	25 U	25 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U
3-Nitroaniline	25	25 U	25 U	25 U	25 U	25 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	25	25 U	25 U	25 U	25 U	25 UJ
4-Nitrophenol	25	25 U	25 U	25 U	25 U	25 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl phenylether	10	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	25	25 U	25 U	25 U	25 U	25 U
4,6-Dinitro 2-methylphenol	25	25 U	25 U	25 U	25 U	25 U
N-Nitrosodiphenylamine(1)	10	10 UJ	10 UJ	10 UJ	10 UJ	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	25	25 U	25 U	25 U	25 U	25 U
Phenanthrene	10	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U
Carbazole	10	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 UJ	10 UJ	10 UJ	10 UJ	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	11
3,3'-Dichlorobenzidine	10	10 UJ	10 UJ	10 UJ	10 UJ	10 U
Benzo(a)anthracene	10	10 UJ	10 UJ	10 UJ	10 UJ	10 U
Chrysene	10	10 UJ	10 UJ	10 UJ	10 UJ	10 U
Bis(2-ethylhexyl)phthalate	10	10 UJ	10 UJ	10 UJ	10 UJ	5 J
Di-n-octylphthalate	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Benzo(b)fluoranthene	10	10 UJ	10 U	10 U	10 UJ	10 U
Benzo(k)fluoranthene	10	10 UJ	10 U	10 U	10 UJ	10 UJ
Benzo(a)pyrene	10	10 UJ	10 U	10 U	10 UJ	10 U
Indeno(1,2,3-cd)pyrene	10	10 UJ	10 U	10 U	10 UJ	10 U
Dibenz(a,h)anthracene	10	10 UJ	10 U	10 U	10 UJ	10 U
Benzo(g,h,i)perylene	10	10 UJ	10 U	10 U	10 UJ	10 U
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0
DATE SAMPLED:		12/07/98	12/07/98	12/07/98	12/07/98	12/06/98
DATE EXTRACTED:		12/13/18	12/13/18	12/13/18	12/13/18	12/11/98
DATE ANALYZED:		12/23/98	12/23/98	12/23/98	12/23/98	01/06/99

SITE: PUTNEY PAPER COMPANY SLUDGE DISPOSAL
CASE: 26713 SDG: ANY00, APP02
LABORATORY: CEIMIC CORPORATION

TABLE 3
PESTICIDE/POLYCHLORINATED BIPHENYL AQUEOUS ANALYSI
µg/L

SAMPLE NUMBER:		ANY10	ANY11	ANY12	ANY13	APP17
SAMPLE LOCATION:		SW-05	SW-06	SW-07	SW-08	RB-03
LABORATORY NUMBER:		981011-18	981011-19	981011-20	981011-21	981006-16
COMPOUND	CRQL					
alpha-BHC	0.050	0.050 U	0.050 U	R	0.050 U	0.050 UJ
beta-BHC	0.050	0.050 U	0.050 U	R	0.050 U	0.050 UJ
delta-BHC	0.050	0.050 U	0.050 U	R	0.050 U	0.050 UJ
gamma-BHC (Lindane)	0.050	0.050 U	0.050 U	R	0.050 U	0.050 UJ
Heptachlor	0.050	0.050 U	0.050 U	R	0.050 U	0.050 UJ
Aldrin	0.050	0.050 U	0.050 U	R	0.050 U	0.050 UJ
Heptachlor Epoxide	0.050	0.050 U	0.050 U	R	0.050 U	0.050 UJ
Endosulfan I	0.050	0.050 U	0.050 U	R	0.050 U	0.050 UJ
Dieldrin	0.10	0.10 U	0.10 U	R	0.10 U	0.10 UJ
4,4'-DDE	0.10	0.10 U	0.10 U	R	0.10 U	0.10 UJ
Endrin	0.10	0.10 U	0.10 U	R	0.10 U	0.10 UJ
Endosulfan II	0.10	0.10 U	0.10 U	R	0.10 U	0.10 UJ
4,4'-DDD	0.10	0.10 U	0.10 U	R	0.10 U	0.10 UJ
Endosulfan Sulfate	0.10	0.10 U	0.10 U	R	0.10 U	0.10 UJ
4,4'-DDT	0.10	0.10 U	0.10 U	R	0.10 U	0.10 UJ
Methoxychlor	0.50	R	R	R	R	R
Endrin Ketone	0.10	0.10 U	0.10 U	R	0.10 U	0.10 UJ
Endrin Aldehyde	0.10	0.10 U	0.10 U	R	0.10 U	0.10 UJ
alpha-Chlordane	0.050	0.050 U	0.050 U	R	0.050 U	0.050 UJ
gamma-Chlordane	0.050	0.050 U	0.050 U	R	0.050 U	0.050 UJ
Toxaphene	5.0	5.0 U	5.0 U	R	5.0 U	5.0 UJ
Aroclor-1016	1.0	1.0 U	1.0 U	R	1.0 U	1.0 UJ
Aroclor-1221	2.0	2.0 U	2.0 U	R	2.0 U	2.0 UJ
Aroclor-1232	1.0	1.0 U	1.0 U	R	1.0 U	1.0 UJ
Aroclor-1242	1.0	1.0 U	1.0 U	R	1.0 U	1.0 UJ
Aroclor-1248	1.0	1.0 U	1.0 U	R	1.0 U	1.0 UJ
Aroclor-1254	1.0	1.0 U	1.0 U	R	1.0 U	1.0 UJ
Aroclor-1260	1.0	1.0 U	1.0 U	R	1.0 U	1.0 UJ
DILUTION FACTOR:		1.00	1.00	1.00	1.00	1.00
DATE SAMPLED:		12/07/98	12/07/98	12/07/98	12/07/98	12/06/98
DATE EXTRACTED:		12/09/98	12/09/98	12/09/98	12/09/98	12/09/98
DATE ANALYZED:		12/31/98	12/31/98	12/31/98	12/31/98	12/30/98

SITE: PUTNEY PAPER COMPANY SLUDGE DISPOSAL
CASE: 26713 SDG: MALX36
LABORATORY: CHEMTECH CONSULTING GROUP

TABLE 1
INORGANIC WATER ANALYSIS
ug/L

SAMPLE NUMBER:	MALX40	MALX41	MALX42	MALX43	MALX73	
SAMPLE LOCATION:	SW-05	SW-06	SW-07	SW-08	RB-03	
LABORATORY NUMBER:	62143S	62144S	62145S	62148S	62107S	
INORGANIC ELEMENTS	METHOD	INSTRUMENT DETECTION LIMITS (ug/L)					CONTRACT DETECTION LIMITS (ug/L)
ALUMINUM	P	7.0	57.5 UJ	39.0 UJ	833 J	1440 J	7.0 U	200
ANTIMONY	P	5.0	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	60
ARSENIC	P	4.0	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	10
BARIUM	P	1.0	19.0	20.1	32.3	33.6	1.0 U	200
BERYLLIUM	P	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.3 UJ	5
CADMIUM	P	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5
CALCIUM	P	11	16800	12300	19800	17200	11.0 U	5000
CHROMIUM	P	2.0	2.0 U	2.0 U	2.0 U	3.4 J	2.0 U	10
COBALT	P	2.0	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	50
COPPER	P	1.0	27.9	17.6	14.6	14.1	1.0 U	25
IRON	P	27	581	215	7180	9220	27.0 U	100
LEAD	P	2.0	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.0	3
MAGNESIUM	P	13	3970	3050	5090	4660	13.0 U	5000
MANGANES	P	1.0	207	90.8	511	418	1.0 U	15
MERCURY	CV	0.20	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	0.20 U	0.2
NICKEL	P	1.0	1.0 J	1.0 U	2.3	3.5	1.0 U	40
POTASSIUM	P	60	1220	862	1370	1210	60.0 U	5000
SELENIUM	P	5.0	5.0	5.0 U	5.0 U	5.0 U	5.0 U	5
SILVER	P	2.0	2.0 UJ	2.0 UJ	3.4 UJ	4.2 UJ	2.0 U	10
SODIUM	P	55	19600	13800	20600	17200	55.0 U	5000
THALLIUM	P	2.0	2.0 UJ	2.0 UJ	4.2 U	2.0 UJ	2.0 U	10
VANADIUM	P	2.0	2.0	2.0	2.5 J	3.9 J	2.3 UJ	50
ZINC	P	2.0	45.6 U	45.6 U	41.4 U	52.0 U	2.0 U	20
CYANIDE	CA	4.0	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	10

ANALYTICAL METHOD
F - FURNACE
P - ICP/FLAME AA
CV - COLD VAPOR
AS - SEMI AUTOMATED

NOTE:
J - QUANTITATION IS ESTIMATED DUE TO LIMITATIONS IDENTIFIED IN THE QUALITY CONTROL REVIEW (DATA REVIEW).
U - VALUE IS NON-DETECTED AND DETECTION LIMIT IS RAISED.
UJ - VALUE IS NON-DETECTED AND DETECTION LIMIT IS ESTIMATED.
R - VALUE IS REJECTED.

SITE: PUTNEY PAPER SLUDGE DISPOSAL SITE
CASE: 0214F SDG: DAF89F_O
LABORATORY: STL\CHICAGO

TABLE 1
VOLATILE SOIL ANALYSIS - LOW LEVEL
µg/kg

SAMPLE NUMBER:		DAF96F
SAMPLE LOCATION:		SD-08
LABORATORY NUMBER:		9812G412-8
COMPOUND	CRQL	
Chloromethane	10	12 U
Bromomethane	10	12 U
Vinyl Chloride	10	12 U
Chloroethane	10	12 U
Methylene Chloride	10	12 U
Acetone	10	12 U
Carbon Disulfide	10	12 UJ
1,1-Dichloroethene	10	12 U
1,1-Dichloroethane	10	12 U
1,2-Dichloroethene (Total)	10	12 U
Chloroform	10	12 U
1,2-Dichloroethane	10	12 U
2-Butanone	10	12 U
1,1,1-Trichloroethane	10	12 U
Carbon Tetrachloride	10	12 U
Bromodichloromethane	10	12 U
1,2-Dichloropropane	10	12 U
cis-1,3-Dichloropropene	10	12 U
Trichloroethene	10	12 U
Dibromochloromethane	10	12 U
1,1,2-Trichloroethane	10	12 U
Benzene	10	12 U
trans-1,3-Dichloropropene	10	12 U
Bromoform	10	12 U
4-Methyl-2-pentanone	10	12 U
2-Hexanone	10	12 U
Tetrachloroethene	10	12 U
1,1,2,2-Tetrachloroethane	10	12 U
Toluene	10	12 U
Chlorobenzene	10	12 U
Ethylbenzene	10	12 U
Styrene	10	12 U
Xylene (total)	10	12 U
DILUTION FACTOR:		1.0
DATE SAMPLED:		12/07/98
DATE ANALYZED:		12/11/98
% MOISTURE:		14

NOTE: RESULTS ARE REPORTED ON A DRY WEIGHT BASIS

SITE: PUTNEY PAPER SLUDGE DISPOSAL SITE
CASE: 0214F SDG: DAF89F_O
LABORATORY: STLICHICAGO

TABLE 1
VOLATILE SOIL ANALYSIS - LOW LEVEL
µg/kg

SAMPLE NUMBER:		DAF97F	DAF99F	DAF46G	DAF47G	DAF48G	DAF49G
SAMPLE LOCATION:		SD-09	SD-11	SD-12	SD-13	SD-14	SD-15
LABORATORY NUMBER:		9812G412-9	9812G412-11	9812G412-12	9812G412-13	9812G412-14	9812G412-15
COMPOUND	CRQL						
Chloromethane	10	14 U	11 U	13 U	12 U	12 U	13 U
Bromomethane	10	14 U	11 U	13 U	12 U	12 U	13 U
Vinyl Chloride	10	14 U	11 U	13 U	12 U	12 U	13 U
Chloroethane	10	14 U	11 U	13 U	12 U	12 U	13 U
Methylene Chloride	10	14 U	11 U	13 U	12 U	12 U	13 U
Acetone	10	14 U	11 U	13 U	12 U	12 U	13 UJ
Carbon Disulfide	10	14 U	11 U	13 U	12 U	12 U	13 U
1,1-Dichloroethene	10	14 U	11 U	13 UJ	12 U	12 U	13 UJ
1,1-Dichloroethane	10	14 U	11 U	13 U	12 U	12 U	13 U
1,2-Dichloroethene (Total)	10	14 U	11 U	13 U	12 U	12 U	13 U
Chloroform	10	14 U	11 U	13 U	12 U	12 U	13 U
1,2-Dichloroethane	10	14 U	11 U	13 U	12 U	12 U	13 U
2-Butanone	10	14 U	11 U	13 U	12 U	12 U	13 U
1,1,1-Trichloroethane	10	14 U	11 U	13 U	12 U	12 U	13 U
Carbon Tetrachloride	10	14 U	11 U	13 U	12 U	12 U	13 U
Bromodichloromethane	10	14 U	11 U	13 U	12 U	12 U	13 U
1,2-Dichloropropane	10	14 U	11 U	13 U	12 U	12 U	13 U
cis-1,3-Dichloropropene	10	14 U	11 U	13 U	12 U	12 U	13 U
Trichloroethene	10	14 U	11 U	13 U	12 U	12 U	13 U
Dibromochloromethane	10	14 U	11 U	13 U	12 U	12 U	13 U
1,1,2-Trichloroethane	10	14 U	11 U	13 U	12 U	12 U	13 U
Benzene	10	14 U	11 U	13 U	12 U	12 U	13 U
trans-1,3-Dichloropropene	10	14 U	11 U	13 U	12 U	12 U	13 U
Bromoform	10	14 U	11 U	13 U	12 U	12 U	13 U
4-Methyl-2-pentanone	10	14 U	11 U	13 U	12 U	12 U	13 U
2-Hexanone	10	14 U	11 U	13 U	12 U	12 U	13 U
Tetrachloroethene	10	14 U	11 U	13 U	12 U	12 U	13 U
1,1,2,2-Tetrachloroethane	10	14 U	11 U	13 U	12 U	12 U	13 U
Toluene	10	14 U	11 U	13 U	12 U	12 U	13 U
Chlorobenzene	10	14 U	11 U	13 U	12 U	12 U	13 U
Ethylbenzene	10	14 U	11 U	13 U	12 U	12 U	13 U
Styrene	10	14 U	11 U	13 U	12 U	12 U	13 U
Xylene (total)	10	14 U	11 U	13 U	12 U	12 U	13 U
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0
DATE SAMPLED:		12/07/98	12/07/98	12/07/98	12/07/98	12/07/98	12/07/98
DATE ANALYZED:		12/12/98	12/14/98	12/14/98	12/14/98	12/14/98	12/14/98
% MOISTURE:		30	11	22	18	17	22

NOTE: RESULTS ARE REPORTED ON A DRY WEIGHT BASIS

SITE: PUTNEY PAPER SLUDGE DISPOSAL SITE
CASE: 0214F SDG: DAF89F_O
LABORATORY: STL\CHICAGO

TABLE 1
VOLATILE SOIL ANALYSIS - LOW LEVEL
µg/kg

SAMPLE NUMBER:		DAF50GRE	DAF52G
SAMPLE LOCATION:		SD-16	SD-16
LABORATORY NUMBER:		9812G412-16	9812G412-16
COMPOUND	CRQL		
Chloromethane	10	16 U	16 U
Bromomethane	10	16 U	16 U
Vinyl Chloride	10	16 U	16 U
Chloroethane	10	16 U	16 U
Methylene Chloride	10	16 U	16 U
Acetone	10	20 J	16 U
Carbon Disulfide	10	16 U	16 U
1,1-Dichloroethene	10	16 UJ	16 U
1,1-Dichloroethane	10	16 U	16 U
1,2-Dichloroethene (Total)	10	16 U	16 U
Chloroform	10	16 U	16 U
1,2-Dichloroethane	10	16 U	16 U
2-Butanone	10	16 U	16 U
1,1,1-Trichloroethane	10	16 U	16 U
Carbon Tetrachloride	10	16 U	16 U
Bromodichloromethane	10	16 U	16 U
1,2-Dichloropropane	10	16 U	16 U
cis-1,3-Dichloropropene	10	16 U	16 U
Trichloroethene	10	16 U	16 U
Dibromochloromethane	10	16 U	16 U
1,1,2-Trichloroethane	10	16 U	16 U
Benzene	10	16 U	16 U
trans-1,3-Dichloropropene	10	16 U	16 U
Bromoform	10	16 U	16 U
4-Methyl-2-pentanone	10	16 UJ	16 U
2-Hexanone	10	16 UJ	16 U
Tetrachloroethene	10	16 UJ	16 U
1,1,2,2-Tetrachloroethane	10	16 UJ	16 U
Toluene	10	16 UJ	16 U
Chlorobenzene	10	16 UJ	16 U
Ethylbenzene	10	16 UJ	16 U
Styrene	10	16 UJ	16 U
Xylene (total)	10	16 UJ	16 U
DILUTION FACTOR:		1.0	1.0
DATE SAMPLED:		12/07/98	12/07/98
DATE ANALYZED:		12/14/98	12/14/98
% MOISTURE:		36	39

NOTE: RESULTS ARE REPORTED ON A DRY WEIGHT BASIS

SITE: PUTNEY PAPER SLUDGE DISPOSAL
CASE: 0214F SDG: DAF69G_D
LABORATORY: STL/ CHICAGO

TABLE 1
VOLATILE AQUEOUS ANALYSIS
µg/L

SAMPLE NUMBER:		DAF55G	DAF53G
SAMPLE LOCATION:		TB-03	RB-01
LABORATORY NUMBER:		9812G413-006	9812G413-007
COMPOUND	CRQL		
Chloromethane	10	10 U	10 U
Bromomethane	10	10 U	10 U
Vinyl Chloride	10	10 U	10 U
Chloroethane	10	10 U	10 U
Methylene Chloride	10	10 U	10 U
Acetone	10	10 U	10 U
Carbon Disulfide	10	10 U	10 U
1,1-Dichloroethene	10	10 U	10 U
1,1-Dichloroethane	10	10 U	10 U
1,2-Dichloroethene (Total)	10	10 U	10 U
Chloroform	10	10 U	10 U
1,2-Dichloroethane	10	10 U	10 U
2-Butanone	10	10 U	10 U
1,1,1-Trichloroethane	10	10 U	10 U
Carbon Tetrachloride	10	10 U	10 U
Bromodichloromethane	10	10 U	10 U
1,2-Dichloropropane	10	10 U	10 U
cis-1,3-Dichloropropene	10	10 U	10 U
Trichloroethene	10	10 U	10 U
Dibromochloromethane	10	10 U	10 U
1,1,2-Trichloroethane	10	10 U	10 U
Benzene	10	10 U	10 U
trans-1,3-Dichloropropene	10	10 U	10 U
Bromoform	10	10 U	10 U
4-Methyl-2-pentanone	10	10 U	10 U
2-Hexanone	10	10 U	10 U
Tetrachloroethene	10	10 U	10 U
1,1,2,2-Tetrachloroethane	10	10 U	10 U
Toluene	10	10 U	10 U
Chlorobenzene	10	10 U	10 U
Ethylbenzene	10	10 U	10 U
Styrene	10	10 U	10 U
Xylene (total)	10	10 U	10 U
DILUTION FACTOR:		1.0	1.0
DATE SAMPLED:		12/07/98	12/07/98
DATE ANALYZED:		12/15/98	12/15/98

SITE: PUTNEY PAPER SLUDGE DISPOSAL SITE
CASE: 0214F SDG: DAF89F_O
LABORATORY: STL\CHICAGO

TABLE 2
SEMIVOLATILE SOIL ANALYSIS
µg/kg

SAMPLE NUMBER:		DAF96F
SAMPLE LOCATION:		SD-06
LABORATORY NUMBER:		9812G412-8
COMPOUND	CRQL	
Phenol	330	380 U
bis(2-Chloroethyl) ether	330	380 U
2-Chlorophenol	330	380 U
1,3-Dichlorobenzene	330	380 U
1,4-Dichlorobenzene	330	380 U
1,2-Dichlorobenzene	330	380 U
2-Methylphenol	330	380 U
2,2'-Oxybis(1-chloropropane)	330	380 U
4-Methylphenol	330	380 U
N-Nitroso-di-n-propylamine	330	380 U
Hexachloroethane	330	380 U
Nitrobenzene	330	380 U
Isophorone	330	380 U
2-Nitrophenol	330	380 U
2,4-Dimethylphenol	330	380 U
bis(2-Chloroethoxy)methane	330	380 U
2,4-Dichlorophenol	330	380 U
1,2,4-Trichlorobenzene	330	380 U
Naphthalene	330	380 U
4-Chloroaniline	330	380 U
Hexachlorobutadiene	330	380 U
4-Chloro-3-methylphenol	330	380 U
2-Methylnaphthalene	330	380 U
Hexachlorocyclopentadiene	330	380 U
2,4,6-Trichlorophenol	330	380 U
2,4,5-Trichlorophenol	830	960 U
2-Chloronaphthalene	330	380 U
2-Nitroaniline	830	960 U
Dimethylphthalate	330	380 U
Acenaphthylene	330	380 U
2,6-Dinitrotoluene	330	380 U
3-Nitroaniline	830	960 U
Acenaphthene	330	380 U
2,4-Dinitrophenol	830	960 UJ
4-Nitrophenol	830	960 UJ
Dibenzofuran	330	380 U
2,4-Dinitrotoluene	330	380 U
Diethylphthalate	330	380 U
4-Chlorophenyl-phenylether	330	380 U
Fluorene	330	380 U
4-Nitroaniline	830	960 U
4,6-Dinitro-2-methylphenol	830	960 U
N-Nitrosodiphenylamine(1)	330	380 U
4-Bromophenyl-phenylether	330	380 U
Hexachlorobenzene	330	380 U
Pentachlorophenol	830	960 U
Phenanthrene	330	380 U
Anthracene	330	380 U
Carbazole	330	380 U
Di-n-butylphthalate	330	380 U
Fluoranthene	330	380 U
Pyrene	330	380 UJ
Butylbenzylphthalate	330	380 U
3,3'-Dichlorobenzidine	330	380 U
Benzo(a)anthracene	330	380 U
Chrysene	330	380 U
Bis(2-ethylhexyl)phthalate	330	380 U
Di-n-octylphthalate	330	380 U
Benzo(b)fluoranthene	330	380 U
Benzo(k)fluoranthene	330	380 U
Benzo(a)pyrene	330	380 U
Indeno(1,2,3-cd)pyrene	330	380 U
Dibenz(a,h)anthracene	330	380 UJ
Benzo(g,h,i)perylene	330	380 UJ
DILUTION FACTOR:		1.0
DATE SAMPLED:		12/07/98
DATE EXTRACTED:		12/19/98
DATE ANALYZED:		12/29/98
% MOISTURE:		14

NOTE: RESULTS ARE REPORTED ON A DRY WEIGHT BASIS

ITE: PUTNEY PAPER SLUDGE DISPOSAL SITE
CASE: 0214F SDG: DAF89F_0
LABORATORY: STL\CHICAGO

TABLE 2
SEMIVOLATILE SOIL ANALYSIS
µg/kg

SAMPLE NUMBER:		DAF97F	DAF98F	DAF46G	DAF47G	DAF48G	DAF49G
SAMPLE LOCATION:		SD-09	SD-11	SD-12	SD-13	SD-14	SD-15
LABORATORY NUMBER:		9812G412-9	9812G412-11	9812G412-12	9812G412-13	9812G412-14	9812G412-15
COMPOUND	CRQL						
Phenol	330	470 U	360 U	420 U	400 U	400 U	430 U
bis(2-Chloroethyl) ether	330	470 U	360 U	420 U	400 U	400 U	430 U
2-Chlorophenol	330	470 U	360 U	420 U	400 U	400 U	430 U
1,3-Dichlorobenzene	330	470 U	360 U	420 U	400 U	400 U	430 U
1,4-Dichlorobenzene	330	470 U	360 U	420 U	400 U	400 U	430 U
1,2-Dichlorobenzene	330	470 U	360 U	420 U	400 U	400 U	430 U
2-Methylphenol	330	470 U	360 U	420 U	400 U	400 U	430 U
2,2'-Oxybis(1-chloropropane)	330	470 U	360 U	420 U	400 U	400 U	430 U
4-Methylphenol	330	470 U	360 U	420 U	400 U	400 U	430 U
N-Nitroso-di-n-propylamine	330	470 U	360 U	420 U	400 U	400 U	430 U
Hexachloroethane	330	470 U	360 U	420 U	400 U	400 U	430 U
Nitrobenzene	330	470 U	360 U	420 U	400 U	400 U	430 U
Isophorone	330	470 U	360 U	420 U	400 U	400 U	430 U
2-Nitrophenol	330	470 U	360 U	420 U	400 U	400 U	430 U
2,4-Dimethylphenol	330	470 U	360 U	420 U	400 U	400 U	430 U
bis(2-Chloroethoxy)methane	330	470 U	360 U	420 U	400 U	400 U	430 U
2,4-Dichlorophenol	330	470 U	360 U	420 U	400 U	400 U	430 U
1,2,4-Trichlorobenzene	330	470 U	360 U	420 U	400 U	400 U	430 U
Naphthalene	330	470 U	360 U	420 U	400 U	400 U	430 U
4-Chloroaniline	330	470 U	360 U	420 U	400 U	400 U	430 U
Hexachlorobutadiene	330	470 U	360 U	420 U	400 U	400 U	430 U
4-Chloro-3-methylphenol	330	470 U	360 U	420 U	400 U	400 U	430 U
2-Methylnaphthalene	330	470 U	360 U	420 U	400 U	400 U	430 U
Hexachlorocyclopentadiene	330	470 U	360 U	420 U	400 U	400 U	430 U
2,4,6-Trichlorophenol	330	470 U	360 U	420 U	400 U	400 U	430 U
2,4,5-Trichlorophenol	830	1200 U	910 U	1100 U	1000 U	990 U	1100 U
2-Chloronaphthalene	330	470 U	360 U	420 U	400 U	400 U	430 U
2-Nitroaniline	830	1200 U	910 U	1100 U	1000 U	990 U	1100 U
Dimethylphthalate	330	470 U	360 U	420 U	400 U	400 U	430 U
Acenaphthylene	330	470 U	360 U	420 U	400 U	400 U	430 U
2,6-Dinitrotoluene	330	470 U	360 U	420 U	400 U	400 U	430 U
3-Nitroaniline	830	1200 U	910 U	1100 U	1000 U	990 UJ	1100 UJ
Acenaphthene	330	470 U	360 U	420 U	400 U	400 U	430 U
2,4-Dinitrophenol	830	1200 UJ	910 UJ	1100 UJ	1000 U	990 UJ	1100 UJ
4-Nitrophenol	830	1200 UJ	910 UJ	1100 UJ	1000 U	990 U	1100 U
Dibenzofuran	330	470 U	360 U	420 U	400 U	400 U	430 U
2,4-Dinitrotoluene	330	470 U	360 U	420 UJ	400 U	400 U	430 U
Diethylphthalate	330	470 U	360 U	420 U	400 U	400 U	430 U
4-Chlorophenyl-phenylether	330	470 U	360 U	420 U	400 U	400 U	430 U
Fluorene	330	470 U	360 U	420 U	400 U	400 U	430 U
4-Nitroaniline	830	1200 U	910 U	1100 U	1000 UJ	990 UJ	1100 UJ
4,6-Dinitro-2-methylphenol	830	1200 U	910 U	1100 U	1000 U	990 U	1100 U
N-Nitrosodiphenylamine(1)	330	470 U	360 U	420 U	400 U	400 U	430 U
4-Bromophenyl-phenylether	330	470 U	360 U	420 U	400 U	400 U	430 U
Hexachlorobenzene	330	470 U	360 U	420 U	400 U	400 U	430 U
Pentachlorophenol	830	1200 U	910 U	1100 U	1000 U	990 U	1100 U
Phenanthrene	330	470 U	360 U	420 U	400 U	400 U	430 U
Anthracene	330	470 U	360 U	420 U	400 U	400 U	430 U
Carbazole	330	470 U	360 U	420 U	400 U	400 U	430 U
Di-n-butylphthalate	330	470 U	360 U	420 U	400 U	400 U	430 U
Fluoranthene	330	78 J	360 U	420 U	400 U	400 U	430 U
Pyrene	330	79 J	360 UJ	420 UJ	400 U	400 U	430 U
Butylbenzylphthalate	330	470 U	360 U	420 U	400 U	400 U	430 U
3,3'-Dichlorobenzidine	330	470 U	360 U	420 U	400 U	400 U	430 U
Benzo(a)anthracene	330	470 U	360 U	420 U	400 U	400 U	430 U
Chrysene	330	470 U	360 U	420 U	400 U	400 U	430 U
Bis(2-ethylhexyl)phthalate	330	470 U	360 U	420 U	400 U	400 U	430 U
Di-n-octylphthalate	330	470 U	360 U	420 U	400 U	400 U	430 U
Benzo(b)fluoranthene	330	80 J	360 U	420 U	400 U	400 U	430 U
Benzo(k)fluoranthene	330	470 U	360 U	420 U	400 U	400 U	430 U
Benzo(a)pyrene	330	470 U	360 U	420 U	400 U	400 U	430 U
Indeno(1,2,3-cd)pyrene	330	470 U	360 U	420 U	400 U	400 U	430 U
Dibenz(a,h)anthracene	330	470 UJ	360 UJ	420 UJ	400 U	400 U	430 U
Benzo(g,h,i)perylene	330	470 UJ	360 UJ	420 UJ	400 U	400 U	430 U
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0
DATE SAMPLED:		12/07/98	12/07/98	12/07/98	12/07/98	12/07/98	12/07/98
DATE EXTRACTED:		12/19/98	12/19/98	12/19/98	12/19/98	12/19/98	12/19/98
DATE ANALYZED:		12/29/98	12/29/98	12/29/98	12/31/98	01/04/99	01/04/99
% MOISTURE:		30	11	22	18	17	22

NOTE: RESULTS ARE REPORTED ON A DRY WEIGHT BASIS

E: PUTNEY PAPER SLUDGE DISPOSAL SITE
ASE: 0214F SDG: DAF89F_O
LABORATORY: STL\CHICAGO

TABLE 2
SEMIVOLATILE SOIL ANALYSIS
µg/kg

SAMPLE NUMBER:		DAF50G	DAF52G
SAMPLE LOCATION:		SD-18	SD-18
LABORATORY NUMBER:		9812G412-18	9812G412-18
COMPOUND	CRQL		
Phenol	330	520 U	540 U
bis(2-Chloroethyl) ether	330	520 U	540 U
2-Chlorophenol	330	520 U	540 U
1,3-Dichlorobenzene	330	520 U	540 U
1,4-Dichlorobenzene	330	520 U	540 U
1,2-Dichlorobenzene	330	520 U	540 U
2-Methylphenol	330	520 U	540 U
2,2'-Oxybis(1-chloropropane)	330	520 U	540 U
4-Methylphenol	330	520 U	540 U
N-Nitroso-di-n-propylamine	330	520 U	540 U
Hexachloroethane	330	520 U	540 U
Nitrobenzene	330	520 U	540 U
Isophorone	330	520 U	540 U
2-Nitrophenol	330	520 U	540 U
2,4-Dimethylphenol	330	520 U	540 U
bis(2-Chloroethoxy)methane	330	520 U	540 U
2,4-Dichlorophenol	330	520 U	540 U
1,2,4-Trichlorobenzene	330	520 U	540 U
Naphthalene	330	520 U	540 U
4-Chloroaniline	330	520 U	540 U
Hexachlorobutadiene	330	520 U	540 U
4-Chloro-3-methylphenol	330	520 U	540 U
2-Methylnaphthalene	330	520 U	540 U
Hexachlorocyclopentadiene	330	520 U	540 U
2,4,6-Trichlorophenol	330	520 U	540 U
2,4,5-Trichlorophenol	830	1300 U	1400 U
2-Chloronaphthalene	330	520 U	540 U
2-Nitroaniline	830	1300 U	1400 U
Dimethylphthalate	330	520 U	540 U
Acenaphthylene	330	520 U	540 U
2,6-Dinitrotoluene	330	520 U	540 U
3-Nitroaniline	830	1300 U	1400 U
Acenaphthene	330	520 U	540 U
2,4-Dinitrophenol	830	1300 UJ	1400 U
4-Nitrophenol	830	1300 UJ	1400 U
Dibenzofuran	330	520 U	540 U
2,4-Dinitrotoluene	330	520 U	540 U
Diethylphthalate	330	520 U	540 U
4-Chlorophenyl-phenylether	330	520 U	540 U
Fluorene	330	520 U	540 U
4-Nitroaniline	830	1300 U	1400 UJ
4,6-Dinitro-2-methylphenol	830	1300 U	1400 U
N-Nitrosodiphenylamine(1)	330	520 U	540 U
4-Bromophenyl-phenylether	330	520 U	540 U
Hexachlorobenzene	330	520 U	540 U
Pentachlorophenol	830	1300 U	1400 U
Phenanthrene	330	520 U	73 J
Anthracene	330	520 U	540 U
Carbazole	330	520 U	540 UJ
Di-n-butylphthalate	330	520 U	540 U
Fluoranthene	330	520 U	160 J
Pyrene	330	520 UJ	140 J
Butylbenzylphthalate	330	520 U	540 U
3,3'-Dichlorobenzidine	330	520 U	540 U
Benzo(a)anthracene	330	520 U	84 J
Chrysene	330	520 U	93 J
Bis(2-ethylhexyl)phthalate	330	520 U	540 U
Di-n-octylphthalate	330	520 U	540 UJ
Benzo(b)fluoranthene	330	520 U	540 U
Benzo(k)fluoranthene	330	520 U	540 U
Benzo(a)pyrene	330	520 U	72 J
Indeno(1,2,3-cd)pyrene	330	520 U	66 J
Dibenz(a,h)anthracene	330	520 UJ	540 U
Benzo(g,h,i)perylene	330	520 UJ	540 U
DILUTION FACTOR:		1.0	1.0
DATE SAMPLED:		12/07/98	12/07/98
DATE EXTRACTED:		12/19/98	12/19/98
DATE ANALYZED:		12/30/98	12/29/98
% MOISTURE:		38	39

NOTE: RESULTS ARE REPORTED ON A DRY WEIGHT BASIS

SITE: PUTNEY PAPER SLUDGE DISPOSAL
CASE: 0214F SDG: DAF69G_O
LABORATORY: STL/ CHICAGO

TABLE 3
SEMIVOLATILE WATER ANALYSIS
µg/L

SAMPLE NUMBER:		DAF53G
SAMPLE LOCATION:		RB-01
LABORATORY NUMBER:		9812G413-007
COMPOUND	CRQL	
Phenol	10	10 U
bis(2-Chloroethyl) ether	10	10 U
2-Chlorophenol	10	10 U
1,3-Dichlorobenzene	10	10 U
1,4-Dichlorobenzene	10	10 U
1,2-Dichlorobenzene	10	10 U
2-Methylphenol	10	10 U
2,2'-Oxybis(1-chloropropane)	10	10 UJ
4-Methylphenol	10	10 U
N-Nitroso-di-n-propylamine	10	10 U
Hexachloroethane	10	10 U
Nitrobenzene	10	10 U
Isophorone	10	10 U
2-Nitrophenol	10	10 U
2,4-Dimethylphenol	10	10 U
bis(2-Chloroethoxy)methane	10	10 U
2,4-Dichlorophenol	10	10 U
1,2,4-Trichlorobenzene	10	10 U
Naphthalene	10	10 U
4-Chloroaniline	10	10 U
Hexachlorobutadiene	10	10 U
4-Chloro-3-methylphenol	10	10 U
2-Methylnaphthalene	10	10 U
Hexachlorocyclopentadiene	10	10 U
2,4,6-Trichlorophenol	10	10 U
2,4,5-Trichlorophenol	25	24 U
2-Chloronaphthalene	10	10 U
2-Nitroaniline	25	24 U
Dimethylphthalate	10	10 U
Acenaphthylene	10	10 U
2,6-Dinitrotoluene	10	10 U
3-Nitroaniline	25	24 U
Acenaphthene	10	10 U
2,4-Dinitrophenol	25	24 UJ
4-Nitrophenol	25	24 U
Dibenzofuran	10	10 U
2,4-Dinitrotoluene	10	10 U
Diethylphthalate	10	10 U
4-Chlorophenyl-phenylether	10	10 U
Fluorene	10	10 U
4-Nitroaniline	25	24 UJ
4,6-Dinitro-2-methylphenol	25	24 UJ
N-Nitrosodiphenylamine(1)	10	10 U
4-Bromophenyl-phenylether	10	10 U
Hexachlorobenzene	10	10 U
Pentachlorophenol	25	24 U
Phenanthrene	10	10 U
Anthracene	10	10 U
Carbazole	10	10 U
Di-n-outylphthalate	10	10 U
Fluoranthene	10	10 UJ
Pyrene	10	10 UJ
Butylbenzylphthalate	10	10 U
3,3'-Dichlorobenzidine	10	10 U
Benzo(a)anthracene	10	10 U
Chrysene	10	10 U
Bis(2-ethylhexyl)phthalate	10	10 U
Di-n-octylphthalate	10	10 U
Benzo(b)fluoranthene	10	10 U
Benzo(k)fluoranthene	10	10 U
Benzo(a)pyrene	10	10 U
Indeno(1,2,3-cd)pyrene	10	10 U
Dibenz(a,h)anthracene	10	10 U
Benzo(g,h,i)perylene	10	10 U
DILUTION FACTOR:		1.0
DATE SAMPLED:		12/07/98
DATE EXTRACTED:		12/10/98
DATE ANALYZED:		12/16/98

SITE: PUTNEY PAPER SLUDGE DISPOSAL SITE
CASE: 0214F SDG: DAF89F_O
LABORATORY: STLICHICAGO

TABLE 3
PESTICIDE/POLYCHLORINATED BIPHENYL SOIL ANALYSIS
µg/kg

SAMPLE NUMBER:		DAF96F
SAMPLE LOCATION:		SD-08
LABORATORY NUMBER:		9812G412-8
COMPOUND	CRQL	
alpha-BHC	1.7	1.9 U
beta-BHC	1.7	1.9 U
delta-BHC	1.7	1.9 U
gamma-BHC (Lindane)	1.7	1.9 U
Heptachlor	1.7	1.9 U
Aldrin	1.7	1.9 U
Heptachlor Epoxide	1.7	1.9 U
Endosulfan I	1.7	1.9 U
Dieldrin	3.3	3.8 U
4,4'-DDE	3.3	3.8 U
Endrin	3.3	3.8 U
Endosulfan II	3.3	3.8 U
4,4'-DDD	3.3	3.8 U
Endosulfan Sulfate	3.3	3.8 U
4,4'-DDT	3.3	3.8 U
Methoxychlor	17	19 U
Endrin Ketone	3.3	3.8 U
Endrin Aldehyde	3.3	3.8 U
alpha-Chlordane	1.7	1.9 U
gamma-Chlordane	1.7	1.9 U
Toxaphene	170	190 U
Aroclor-1016	33	38 U
Aroclor-1221	67	76 U
Aroclor-1232	33	38 U
Aroclor-1242	33	38 U
Aroclor-1248	33	38 U
Aroclor-1254	33	38 U
Aroclor-1260	33	38 U

DILUTION FACTOR:	1.00
DATE SAMPLED:	12/07/98
DATE EXTRACTED:	12/21/98
DATE ANALYZED:	01/07/99
% MOISTURE:	14

NOTE: RESULTS ARE REPORTED ON A DRY WEIGHT BASIS.

SITE: PUTNEY PAPER SLUDGE DISPOSAL SITE
CASE: 0214F SDG: DAF89F_O
LABORATORY: STL\CHICAGO

TABLE 3
PESTICIDE/POLYCHLORINATED BIPHENYL SOIL ANALYSIS
µg/kg

SAMPLE NUMBER:		DAF97F	DAF99F	DAF46G	DAF47G	DAF48G	DAF49G
SAMPLE LOCATION:		SD-09	SD-11	SD-12	SD-13	SD-14	SD-15
LABORATORY NUMBER:		9812G412-9	9812G412-11	9812G412-12	9812G412-13	9812G412-14	9812G412-15
COMPOUND	CRQL						
alpha-BHC	1.7	2.4 U	1.8 U	2.1 U	2.0 U	2.0 U	2.1 U
beta-BHC	1.7	2.4 U	1.8 U	2.1 U	2.0 U	2.0 U	2.1 U
delta-BHC	1.7	2.4 U	1.8 U	2.1 U	2.0 U	2.0 U	2.1 U
gamma-BHC (Lindane)	1.7	2.4 U	1.8 U	2.1 U	2.0 U	2.0 U	2.1 U
Heptachlor	1.7	2.4 U	1.8 U	2.1 U	2.0 U	2.0 U	2.1 U
Aldrin	1.7	2.4 U	1.8 U	2.1 U	2.0 U	2.0 U	2.1 U
Heptachlor Epoxide	1.7	2.4 U	1.8 U	2.1 U	2.0 U	2.0 U	2.1 U
Endosulfan I	1.7	2.4 U	1.8 U	2.1 U	2.0 U	2.0 U	2.1 U
Dieldrin	3.3	4.7 U	3.7 U	4.2 U	4.0 U	4.0 U	4.2 U
4,4'-DDE	3.3	4.7 U	3.7 U	4.2 U	4.0 U	4.0 U	4.2 U
Endrin	3.3	4.7 U	3.7 U	4.2 U	4.0 U	4.0 U	4.2 U
Endosulfan II	3.3	4.7 U	3.7 U	4.2 U	4.0 U	4.0 U	4.2 U
4,4'-DDD	3.3	4.7 U	3.7 U	4.2 U	4.0 U	4.0 U	4.2 U
Endosulfan Sulfate	3.3	4.7 U	3.7 U	4.2 U	4.0 U	4.0 U	4.2 U
4,4'-DDT	3.3	4.7 U	3.7 U	4.2 U	4.0 U	4.0 U	4.2 U
Methoxychlor	17	24 U	18 U	21 U	20 U	20 U	21 U
Endrin Ketone	3.3	4.7 U	3.7 U	4.2 U	4.0 U	4.0 U	4.2 U
Endrin Aldehyde	3.3	4.7 U	3.7 U	4.2 U	4.0 U	4.0 U	4.2 U
alpha-Chlordane	1.7	2.4 U	1.8 U	2.1 U	2.0 U	2.0 U	2.1 U
gamma-Chlordane	1.7	2.4 U	1.8 U	2.1 U	2.0 U	2.0 U	2.1 U
Toxaphene	170	240 U	180 U	210 U	200 U	200 U	210 U
Aroclor-1016	33	47 U	37 U	42 U	40 U	40 U	42 U
Aroclor-1221	67	95 U	73 U	84 U	80 U	80 U	83 U
Aroclor-1232	33	47 U	37 U	42 U	40 U	40 U	42 U
Aroclor-1242	33	47 U	37 U	42 U	40 U	40 U	42 U
Aroclor-1248	33	47 U	37 U	42 U	40 U	40 U	42 U
Aroclor-1254	33	47 U	37 U	42 U	40 U	40 U	42 U
Aroclor-1260	33	47 U	37 U	42 U	40 U	40 U	42 U
DILUTION FACTOR:		1.00	1.00	1.00	1.00	1.00	1.00
DATE SAMPLED:		12/07/98	12/07/98	12/07/98	12/07/98	12/07/98	12/07/98
DATE EXTRACTED:		12/21/98	12/21/98	12/21/98	12/21/98	12/21/98	12/21/98
DATE ANALYZED:		01/07/99	01/07/99	01/07/99	01/07/99	01/07/99	01/07/99
% MOISTURE:		31	11	22	2	17	22

NOTE: RESULTS ARE REPORTED ON A DRY WEIGHT BASIS.

SITE: PUTNEY PAPER SLUDGE DISPOSAL SITE
CASE: 0214F SDG: DAF89F_O
LABORATORY: STL\CHICAGO

TABLE 3
PESTICIDE/POLYCHLORINATED BIPHENYL SOIL ANALYSIS
µg/kg

SAMPLE NUMBER:		DAF50G	DAF52G
SAMPLE LOCATION:		SD-16	SD-18
LABORATORY NUMBER:		9812G412-16	9812G412-18
COMPOUND	CRQL		
alpha-BHC	1.7	2.6 U	2.7 U
beta-BHC	1.7	2.6 U	2.7 U
delta-BHC	1.7	2.6 U	2.7 U
gamma-BHC (Lindane)	1.7	2.6 U	2.7 U
Heptachlor	1.7	2.6 U	2.7 U
Aldrin	1.7	2.6 U	2.7 U
Heptachlor Epoxide	1.7	2.6 U	2.7 U
Endosulfan I	1.7	2.6 U	2.7 U
Dieldrin	3.3	5.2 U	5.3 U
4,4'-DDE	3.3	5.2 U	5.3 U
Endrin	3.3	5.2 U	5.3 U
Endosulfan II	3.3	5.2 U	5.3 U
4,4'-DDD	3.3	5.2 U	5.3 U
Endosulfan Sulfate	3.3	5.2 U	5.3 U
4,4'-DDT	3.3	5.2 U	5.3 U
Methoxychlor	17	26 U	27 U
Endrin Ketone	3.3	5.2 U	5.3 U
Endrin Aldehyde	3.3	5.2 U	5.3 U
alpha-Chlordane	1.7	2.6 U	2.7 U
gamma-Chlordane	1.7	2.6 U	2.7 U
Toxaphene	170	260 U	270 U
Aroclor-1016	33	52 U	53 U
Aroclor-1221	67	100 U	110 U
Aroclor-1232	33	52 U	53 U
Aroclor-1242	33	52 U	53 U
Aroclor-1248	33	52 U	53 U
Aroclor-1254	33	52 U	53 U
Aroclor-1260	33	52 U	53 U
DILUTION FACTOR:		1.00	1.00
DATE SAMPLED:		12/07/98	12/07/98
DATE EXTRACTED:		12/21/98	12/21/98
DATE ANALYZED:		01/07/99	01/07/99
% MOISTURE:		36	39

NOTE: RESULTS ARE REPORTED ON A DRY WEIGHT BASIS.

SITE: PUTNEY PAPER SLUDGE DISPOSAL
CASE: 0214F SDG: DAF69G_O
LABORATORY: STL/CHICAGO

TABLE 5
PESTICIDE/POLYCHLORINATED BIPHENYL AQUEOUS ANALYSIS
µg/L

SAMPLE NUMBER:		DAF53G
SAMPLE LOCATION:		RB-01
LABORATORY NUMBER:		9812G413-007
COMPOUND	CRQL	
alpha-BHC	0.050	0.048 U
beta-BHC	0.050	0.048 U
delta-BHC	0.050	0.048 U
gamma-BHC (Lindane)	0.050	0.048 U
Heptachlor	0.050	0.048 U
Aldrin	0.050	0.048 U
Heptachlor Epoxide	0.050	0.048 U
Endosulfan I	0.050	0.048 U
Dieldrin	0.10	0.096 U
4,4'-DDE	0.10	0.096 U
Endrin	0.10	0.096 U
Endosulfan II	0.10	0.096 U
4,4'-DDD	0.10	0.096 U
Endosulfan Sulfate	0.10	0.096 U
4,4'-DDT	0.10	0.096 U
Methoxychlor	0.50	0.48 U
Endrin Ketone	0.10	0.096 U
Endrin Aldehyde	0.10	0.096 U
alpha-Chlordane	0.050	0.048 U
gamma-Chlordane	0.050	0.048 U
Toxaphene	5.0	4.8 U
Aroclor-1016	1.0	0.96 U
Aroclor-1221	2.0	1.9 U
Aroclor-1232	1.0	0.96 U
Aroclor-1242	1.0	0.96 U
Aroclor-1248	1.0	0.96 U
Aroclor-1254	1.0	0.96 U
Aroclor-1260	1.0	0.96 U
DILUTION FACTOR:		1.00
DATE SAMPLED:		12/07/98
DATE EXTRACTED:		12/14/98
DATE ANALYZED:		12/23/98

SITE: PUTNEY PAPER COMPANY SLUDGE DISPOSAL
CASE: 0214F SDG: DAF46G_I
LABORATORY: SEVERN TRENT LABORATORIES

TABLE 1
INORGANIC SOIL ANALYSES
mg/kg

SAMPLE NUMBER:			DAF96F	DAF97F	DAF98F	DAF99F	DAF46F	DAF47G	DAF48G	
SAMPLE LOCATION:			SD-08	SD-09	SD-10	SD-11	SD-12	SD-13	SD-14	
LABORATORY NUMBER:			9812G412-8	9812G412-9	9812G412-10	9812G412-11	9812G412-12	9812G412-13	9812G412-14	
PERCENT SOLIDS:			86.5	69.5	86.9	89.3	78.2	82.5	82.9	
INORGANIC ELEMENTS	METHOD	INSTRUMENT DETECTION LIMITS (mg/kg)								CONTRACT DETECTION LIMITS (mg/kg)
ALUMINUM	P	3.50	5410	6940	7480	4210	6100	9010	9120	40
ANTIMONY	P	0.42	0.38 UJ	0.48 UJ	0.37 UJ	0.36 UJ	0.44 UJ	0.40 UJ	0.59 J	12
ARSENIC	P	0.76	1.2 J	2.6 J	2.5 J	2.1 J	7.1 J	5.8 J	5.4 J	2
BARIUM	P	0.04	15.0	32.5	25.9	19.7	25.2	45.0	44.3	40
BERYLLIUM	P	0.06	0.21	0.31	0.29 J	0.18	0.29	0.48 J	0.45	1
CADMIUM	P	0.08	0.07 U	0.09 U	0.07 UJ	0.07 U	0.08 U	0.08 UJ	0.08 U	1
CALCIUM	P	2.94	931	1240	707	833	1150	1150	1230	1000
CHROMIUM	P	0.18	9.8	11.8	11.4	10.3	11.8	15.8	15.9	2
COBALT	P	0.20	3.9	7.0	6.8	3.8	5.6	7.1	7.4	10
COPPER	P	0.22	9.2	13.2	10.2	6.4	13.4	14.7	15.2	5
IRON	P	3.98	13400	14500	16500	10000	15900	17900	17400	20
LEAD	P	0.38	2.9 J	7.3 J	5.7 J	3.6 J	5.1 J	23.7 J	17.2 J	0.6
MAGNESIUM	P	2.74	2340	2930	3070	2100	2590	3750	3690	1000
MANGANESE	P	0.08	114 J	241 J	368 J	193 J	209 J	328 J	320 J	3
MERCURY	CV	0.05	0.05 U	0.05 U	0.04 U	0.03 U	0.06 U	0.06 U	0.05 U	0.1
NICKEL	P	0.22	12.9	16.7	18.1	10.6	15.5	18.4	18.7	8
POTASSIUM	P	6.60	478	834	596	500	640	887	921	1000
SELENIUM	P	0.42	0.85 J	0.69 J	0.96 J	0.57 J	1.1 J	1.6 J	1.1 J	1
SILVER	P	0.24	0.22 U	0.28 U	0.21 U	0.21 U	0.25 U	0.23 U	0.23 U	2
SODIUM	P	84	166 J	512 J	173 J	449 J	517 J	639 J	659 J	1000
THALLIUM	P	0.58	1.4 U	1.8	2.2 J	1.2	1.8 U	1.9 J	1.9 U	2
VANADIUM	P	0.14	10.5	14.2	14.8	11.7	14.5	19.9	19.8	10
ZINC	P	0.12	24.8	43.8	47.1	19.1	32.6	55.6	55.7	4
CYANIDE	C	0.50	0.51 U	0.69 U	NA	0.55 U	0.63 U	0.66 U	0.53 U	2.5

ANALYTICAL METHOD
F - FURNACE
P - ICP/FLAME AA
CV - COLD VAPOR
C - MANUAL SPECTROPHOTOMETRIC
CA - MIDI-DISTILLATION SPECTROPHOTOMETRIC

NOTE:
J = QUANTITATION IS ESTIMATED DUE TO LIMITATIONS IDENTIFIED IN THE QUALITY CONTROL REVIEW (DATA REVIEW).
U = VALUE IS NON-DETECTED.
UJ = VALUE IS NON-DETECTED AND DETECTION LIMIT IS ESTIMATED.
R = VALUE IS REJECTED.
NA = NOT ANALYZED

NOTE: RESULTS ARE REPORTED ON A DRY WEIGHT BASIS

SITE: PUTNEY PAPER COMPANY SLUDGE DISPOSAL
CASE: 0214F SDG: DAF46G_I
LABORATORY: SEVERN TRENT LABORATORIES

TABLE 1
INORGANIC SOIL ANALYSES
mg/kg

SAMPLE NUMBER:			DAF49G	DAF50G	DAF51G	DAF52G	
SAMPLE LOCATION:			SD-15	SD-16	SD-17	SD-18	
LABORATORY NUMBER:			812G412-15	9812G412-16	9812G412-17	9812G412-18	
PERCENT SOLIDS:			77.9	63.7	82.7	61.0	
INORGANIC ELEMENTS	METHOD	INSTRUMENT DETECTION LIMITS (mg/kg)					CONTRACT DETECTION LIMITS (mg/kg)
ALUMINUM	P	3.50	11800	13200	13300	7240	40
ANTIMONY	P	0.42	0.43 UJ	0.52 UJ	0.39 UJ	0.54 UJ	12
ARSENIC	P	0.76	4.6 J	16.5 J	17.8 J	3.5 J	2
BARIUM	P	0.04	34.6	99.6	84.0	35.5	40
BERYLLIUM	P	0.06	0.47	0.84 J	0.69 J	0.32	1
CADMIUM	P	0.08	0.08 U	0.10 UJ	0.07 UJ	0.10 U	1
CALCIUM	P	2.94	1000	2470	1670	1240	1000
CHROMIUM	P	0.18	19.5	20.8	22.1	13.1	2
COBALT	P	0.20	7.9	13.5	12.0	6.7	10
COPPER	P	0.22	19.9	25.6	21.7	14.0	5
IRON	P	3.98	18000	25100	27900	15900	20
LEAD	P	0.38	14.3 J	20.7 J	17.7 J	6.1 J	0.6
MAGNESIUM	P	2.74	4310	5210	6100	3220	1000
MANGANESE	P	0.08	367 J	876 J	803 J	196 J	3
MERCURY	CV	0.05	0.06	0.05 U	0.05 U	0.07 U	1
NICKEL	P	0.22	20.6	30.4	28.2	17.0	8
POTASSIUM	P	6.60	1140	1280	1170	925	1000
SELENIUM	P	0.42	1.1 J	2.2 J	2.3 J	1.3 J	1
SILVER	P	0.24	0.25 U	0.29 U	0.22 U	0.31 U	2
SODIUM	P	84	589 J	978 J	343 J	581 J	1000
THALLIUM	P	0.58	2.2	2.5 J	2.8 J	1.3 J	2
VANADIUM	P	0.14	22.5	30.7	33.1	15.8	10
ZINC	P	0.12	57.3	100	103	53.5	4
CYANIDE	C	0.50	0.64 U	0.77 U	NA	0.74 U	0.5

ANALYTICAL METHOD
F - FURNACE
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NOTE:
J = QUANTITATION IS ESTIMATED DUE TO LIMITATIONS IDENTIFIED IN THE QUALITY CONTROL REVIEW (DATA REVIEW).
U = VALUE IS NON-DETECTED.
UJ = VALUE IS NON-DETECTED AND DETECTION LIMIT IS ESTIMATED.
R = VALUE IS REJECTED.
NA = NOT ANALYZED

NOTE: RESULTS ARE REPORTED ON A DRY WEIGHT BASIS

SITE: PUTNEY PAPER COMPANY SLUDGE DISPOSAL
CASE: 0214F SDG: DAF22H_I
LABORATORY: SEVERN TRENT LABORATORIES

TABLE 1
INORGANIC WATER ANALYSIS
µg/L

SAMPLE NUMBER:	DAF53G
SAMPLE LOCATION:	RB-01
LABORATORY NUMBER:	9812G413-007

INORGANIC ELEMENTS	METHOD	INSTRUMENT DETECTION LIMITS (ug/L)		CONTRACT DETECTION LIMITS (ug/L)
ALUMINUM	P	17.5	20.1 U	200
ANTIMONY	P	2.1	2.1 U	60
ARSENIC	P	3.8	3.8 U	10
BARIUM	P	0.20	0.28 U	200
BERYLLIUM	P	0.30	0.30 U	5
CADMIUM	P	0.40	0.40 U	5
CALCIUM	P	14.7	60.9 U	5000
CHROMIUM	P	0.90	0.90 U	10
COBALT	P	1.0	1.0 U	50
COPPER	P	1.1	1.1 U	25
IRON	P	19.9	19.9 UJ	100
LEAD	P	1.9	1.9 UJ	3
MAGNESIUM	P	13.7	13.7 U	5000
MANGANESE	P	0.40	0.40 U	15
MERCURY	CV	0.10	0.10 U	0.2
NICKEL	P	1.1	1.1 U	40
POTASSIUM	P	33.0	164 U	5000
SELENIUM	P	2.1	2.1 U	5
SILVER	P	1.2	1.2 U	10
SODIUM	P	419	419 U	5000
THALLIUM	P	2.9	2.9 U	10
VANADIUM	P	0.70	0.70 U	50
ZINC	P	0.60	2.4 U	20
CYANIDE	C	10.0	10.0 UJ	10

ANALYTICAL METHOD
F - FURNACE
P - ICP/FLAME AA
CV - COLD VAPOR
C - MANUAL SPECTROPHOTOMETRIC
CA - MIDI-DISTILLATION SPECTROPHOTOMETRIC

NOTE:
J - QUANTITATION IS ESTIMATED DUE TO LIMITATIONS IDENTIFIED IN THE QUALITY CONTROL REVIEW (DATA REVIEW).
U - VALUE IS NON-DETECTED AND DETECTION LIMIT IS RAISED.
UJ VALUE IS NON-DETECTED AND DETECTION LIMIT IS ESTIMATED.
R - VALUE IS REJECTED.

Data Summary Table
Dioxin/Furan Analysis - Solid Samples

SITE: PUTNEY PAPER COMPANY
DAS NO.: 0215F SDG NO.: DAF12H

SAMPLE NUMBER:	DAF47G #		DAF48G #	
STATION LOCATION:	SD-13		SD-14	
MATRIX:	SEDIMENT		SEDIMENT	
TCDD/TCDF CONC.:	pg/g	DL/EMPC*	pg/g	DL/EMPC*
2,3,7,8-TCDD	UJ	0.130	UJ	0.0679
1,2,3,7,8-PeCDD	UJ	0.0579	UJ	0.172
1,2,3,4 7,8-HxCDD	UJ	0.146	UJ	0.164
1,2,3,6 7,8-HxCDD	UJ	0.551	UJ	0.581
1,2,3,7 8,9-HxCDD	UJ	0.339	UJ	0.150
1,2,3,4,6,7,8-HpCDD	6.76 J		6.67 J	
OCDD	68.7 J		59.1 J	
2,3,7,8-TCDF	0.705 EB			0.519 *
1,2,3,7,8-PeCDF		0.0958 *		0.333 *
2,3,4,7,8-PeCDF		0.190 *	0.481 JEB	
1,2 3,4,7,8-HxCDF	UJ	0.132	UJ	0.799
1,2 3,6,7,8-HxCDF	UJ	0.275	UJ	0.663
1,2,3,7,8,9-HxCDF	UJ	0.0599	UJ	0.142
2,3,4,6,7,8-HxCDF	UJ	0.0758	UJ	0.300
1,2,3,4,6,7,8-HpCDF	1.95 JEB		4.04 JEB	
1,2,3,4,7,8,9-HpCDF	UJ	0.232	UJ	0.523
OCDF	UJ	5.76	UJ	5.66
TOTAL TCDD	0.0579 JEB		0.0103 JEB	
TOTAL PeCDD	UJ	0.0419	UJ	0.0121
TOTAL HxCDD	UJ	0.914	UJ	0.591
TOTAL HpCDD	12.2 JEB		12.2 JEB	
TOTAL TCDF	1.18 JEB		1.65 JEB	
TOTAL PeCDF	1.75 JEB		4.39 JEB	
TOTAL HxCDF	UJ	1.43	UJ	2.80
TOTAL HpCDF	UJ	6.26	UJ	4.56
TOXICITY EQUIVALENCY:	0.326 J		0.475 J	
% SOLIDS:	84		84	
DILUTION FACTOR:	1.0		1.0	
DATE SAMPLED:	12/07/98		12/07/98	
DATE OF RECEIPT:	12/10/98		12/10/98	
SAMPLE EXTRACTION DATE:	12/11/98		12/11/98	
ANALYSIS DATE:	01/02/99		12/31/98	
LAB SAMPLE ID:	115800		115801	

* = These values are EMPCs (Estimated Maximum Possible Concentration); EMPC values are not qualified with a "J", Values without an "*" are the Detection Limits.
# = These values are reported on a dry weight basis.
E = Exceeded instrument calibration range.
EB = Equipment Blank contamination.

E: PUTNEY PAPER COMPANY
DAS NO.: 0215F SDG NO.: DAF12H

SAMPLE NUMBER:	DAF49G #		DAF50G #		DAF52G #	
STATION LOCATION:	SD-15		SD-16		SD-18	
MATRIX:	SEDIMENT		SEDIMENT		SEDIMENT	
TCDD/TCDF CONC.:	pg/g	DL/EMPC*	pg/g	DL/EMPC*	pg/g	DL/EMPC*
2,3,7,8-TCDD	UJ	0.106	UJ	0.108	UJ	0.094
1,2,3,7,8-PeCDD	UJ	0.201	UJ	0.0638	UJ	0.128
1,2,3,4,7,8-HxCDD	UJ	0.179	UJ	0.247	UJ	0.18
1,2,3,6,7,8-HxCDD	UJ	0.664	UJ	0.331	UJ	0.146
1,2,3,7,8,9-HxCDD	UJ	0.608	UJ	0.225	UJ	0.098
1,2,3,4,6,7,8-HpCDD	UJ	4.69	UJ	0.749	UJ	1.340
OCDD	UJ	33.5	UJ	7.39	UJ	10.600
2,3,7,8-TCDF	1.02 JEB			0.161 *		0.130 *
1,2,3,7,8-PeCDF		0.494 *		0.0698 *		0.018 *
2,3,4,7,8-PeCDF		0.476 *		0.116 *		0.108 *
1,2,3,4,7,8-HxCDF	UJ	1.07	UJ	0.359	UJ	0.046
1,2,3,6,7,8-HxCDF	UJ	0.458	UJ	0.0558	UJ	0.233
1,2,3,7,8,9-HxCDF	UJ	0.0837	UJ	0.145	UJ	0.0004
2,3,4,6,7,8-HxCDF	UJ	0.448	UJ	0.231	UJ	0.060
1,2,3,4,6,7,8-HpCDF	2.62 JEB			0.680 *		0.734 *
1,2,3,4,7,8,9-HpCDF	UJ	0.265	UJ	0.227	UJ	0.263
OCDF	UJ	2.94	UJ	1.76	UJ	2.580
TOTAL TCDD	0.0075 JEB		0.0089 JEB		0.2010 JEB	
TOTAL PeCDD	UJ	0.0073	UJ	0.0289	UJ	0.0357
TOTAL HxCDD	UJ	1.77	UJ	0.0287	UJ	0.0157
TOTAL HpCDD	8.30 JEB		0.747 JEB		0.043 JEB	
TOTAL TCDF	2.60 JEB		0.126 JEB		0.067 JEB	
TOTAL PeCDF	2.20 JEB		0.0193 JEB		0.3610 JEB	
TOTAL HxCDF	UJ	2.89	UJ	0.0225	UJ	0.2330
TOTAL HpCDF	UJ	4.92	UJ	0.0213	UJ	0.0301
TOXICITY EQUIVALENCY:	0.391 J		0.0844 J		0.0752 J	
% SOLIDS:	77		58		75	
DILUTION FACTOR:	1.0		1.0		1.0	
DATE SAMPLED:	12/07/98		12/07/98		12/07/98	
DATE OF RECEIPT:	12/10/98		12/10/98		12/10/98	
SAMPLE EXTRACTION DATE:	12/11/98		12/11/98		12/11/98	
ANALYSIS DATE:	12/31/98		12/30/98		12/30/98	
LAB SAMPLE ID:	115802		115803		115804	

* = These values are EMPCs (Estimated Maximum Possible Concentration); EMPC values are not qualified with a "J", Values without an "*" are the Detection Limits.

= These values are reported on a dry weight basis.

EB = Equipment Blank contamination.